

Service Manual

PCM Digital Ensemble SX-PR702 /PR702M



Photo: SX-PR702

(M), (MC), (XM), (EN), (EH), (EF), (EZ), (EW), (EA), (EP),
(EK), (XL), (XR), (XS), (XD), (XT), (X), (XP), (XW)

AREAS

(M): U.S.A.	(XL): New Zealand
(MC): Canada	(XR): Australia
(XM): Mexico	(XS): Malaysia
(EN): Norway, Sweden, Denmark, Finland	(XD): Hong Kong
(EH): Holland, Belgium	(XT): Taiwan
(EF): France, Italy	(X): Thailand, Panama, Venezuela, Ecuador, , Colombia, Chile, Peru, Brasil
(EZ): Germany	(XP): Philippines
(EW): Switzerland	(XW): Singapore
(EA): Austria	
(EP): Spain, Portugal, South Africa	
(EK): the United Kingdom	

⚠ WARNING

This service information is designed for experienced repair technicians only and is not designed for use by the general public. It does not contain warnings or cautions to advise non-technical individuals of potential dangers in attempting to service a product. Products powered by electricity should be serviced or repaired only by experienced professional technicians. Any attempt to service or repair the product or products dealt with in this service information by anyone else could result in serious injury or death.

■ Specifications

KEYBOARD		88 KEYS
SOUND GENERATOR		PCM
MAXIMUM NUMBER OF NOTES PRODUCED SIMULTANEOUSLY		64 SOUNDS
SOUNDS	NUMBER OF SOUNDS	317 SOUNDS + 12 DRUM KITS + 2 DIGITAL DRAWBARS
	PIANO	GRAND, UPRIGHT, ELECTRIC, MODERN
	SOUND GROUP	GUITAR & HARPSI, STRINGS & VOCAL, BRASS, SAX & WOODWIND, ORGAN & ACCORDION, SYNTH, Mallet & ORCH PERC, WORLD PERC, GM SPECIAL, BASS, DRUM KITS, PIANO MIXTURES, ORCHESTRAL MIXTURES, DIGITAL DRAWBAR
	GM SOUNDS	128 NOTES
SOLO PIANO		☐
TOUCH SENSITIVITY		☐
PEDAL		SUSTAIN, SOSTENUTO, SOFT
EFFECT		SUSTAIN PEDAL, DIGITAL EFFECT, DSP EFFECT, BRILLIANCE, PIANO AMBIENCE, DIGITAL REVERB
PART SELECT		RIGHT1, RIGHT2, LEFT
TRANPOSE		G-C-F#
RHYTHMS	NUMBER OF RHYTHMS	128 RHYTHMS × 4 VARIATIONS
	RHYTHM GROUP	ROCK & POP, JAZZ & BLUES, COUNTRY, BALLAD, LATIN & WORLD, SOUL & DISCO, BIG BAND & SWING, USA TRAD,MARCH & WALTZ, SHOW TIME & TRAD DANCE
METRONOME		☐
CONTROLS		MAIN VOLUME, APC/SEQUENCER VOLUME, BALANCE, MUTE, CONDUCTOR, START/STOP, INTRO & ENDING 1, INTRO & ENDING 2, FILL IN 1, FILL IN 2, COUNT INTRO, SYNCHRO START, TEMPO/PROGRAM, TAP TEMPO, FADE IN/OUT, SPLIT POINT, R1/R2 OCTAVE
PIANO PERFORMANCE PADS		20 BANKS × 6 PADS WITH SOLO (USER BANK × 3 [STORAGE CAPACITY: APPROX. 3500NOTES], COMPILE BANKS × 2, CONTROL PRESET × 1) STOP/RECORD, AUTO SETTING
AUTO PLAY CHORD		MODE: BASIC, ADVANCED 1, ADVANCED 2, PIANIST ON BASS, CHORD FINDER, LEFT HOLD

Technics

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MUSIC STYLE ARRANGER	○
SOUND ARRANGER	○
PIANO STYLIST	○
ONE TOUCH PLAY	○
TECHNI-CHORD	○
PANEL MEMORY	3 BANKS × 8, SET, NEXT BANK, BANK VIEW
SEQUENCER	16 TRACKS RESOLUTION : 1/96 PER BEAT STORAGE CAPACITY : APPROX. 40000 NOTES (10 SONGS MAX.) INPUT MODES : EASY RECORD, REALTIME RECORD, STEP RECORD FUNCTIONS : CREATE, EDIT
COMPOSER	5 PARTS : BASS, ACCOMP 1, ACCOMP 2, ACCOMP 3, DRUMS STORAGE CAPACITY : APPROX. 10000 NOTES INPUT MODES : EASY COMPOSER, REALTIME RECORD, STEP RECORD FUNCTIONS : PATTERN COPY, SEQ TO COMPOSER COPY, LOAD SINGLE COMPOSER MEMORY : 3 BANKS × 10 (VARIATION 1-4, INTRO 1, 2, FILL IN 1, 2, ENDING 1, 2)
DISK DRIVE	3.5 inch FLOPPY DISK DRIVE for 2HD (1.44 MB), 2DD (720 KB) LOAD, SAVE, DIRECT PLAY, SONG MEDLEY, DISK TOOLS, PREFERENCES
SOUND SETTING	PART SETTING, MIXER, MASTER TUNING, KEY SCALING, TECHNI-CHORD, REVERB, TONE CONTROL, DSP EFFECT, PIANO AMBIENCE
SOUND EDIT	EASY EDIT, TONE SELECT, TONE LAYER, PITCH, FILTER, AMPLITUDE, DIGITAL EFFECT, CONTROLLER MEMORY: 40, 1 USER DRUM KIT
CONTROL	INITIAL, PEDAL SETTING, DISPLAY TIME OUT, PANEL MEMORY MODE, MUSIC STYLE ARRANGER MODE, FADE IN/OUT SETTING
DISPLAY	LCD PAGE, CONTRAST, EXIT, DISPLAY HOLD
HELP	○
DEMO	○
TERMINALS	PHONES × 2, LINE OUT (R/R+L, L), AUX IN (R/R+L, L), COMPUTER, MIDI (IN, OUT, THRU), PEDAL IN
MIC INPUT	○ (MIC REVERB & EFFECT)
OUTPUT	120 W (60 W × 2)
SPEAKERS	16 cm × 2, 6.5 cm × 2, MONITOR SPEAKER × 2
POWER REQUIREMENT	120 W
	AC120/220/240 V 50/60 Hz
	AC120 V 60 Hz (NORTH AMERICA AND MEXICO) AC230-240 V 50/60 Hz (EUROPE, AUSTRALIA, NEW ZEALAND, SINGAPORE AND PHILIPPINES)
DIMENSIONS (W × H × D)	139.7 cm × 107.5 cm × 62.4 cm (55" × 42-5/16" × 24-9/16")
NET WEIGHT	79kg (174.2lbs.)
ACCESSORIES	AC CORD, FLOPPY DISK

•Specifications are subject to change without notice for further improvement.

WARNING

To prevent the risk of fire, smoke, or electrical shock and to ensure safe operation, please be sure to follow the safety guidelines below.

- At places where special caution is required, the necessary safety precautions are clearly labeled or printed, for example, on the cabinet, or on the part concerned. Please follow these safety precautions, and also those listed in the Owner's Manual.
- Parts which have a  mark in the circuit diagram or in the parts list are essential for safety. When replacing these parts, be sure to use only the specified parts.
- Use the specified types for internal wiring (double-insulated wiring, etc.).
- When replacing parts on the AC primary side (power transformer, electric switch, electrical cord, noise-prevention condenser, etc.), wind the lead wire and secure it by soldering.
- Do not let the wiring come into contact with heat-emitting devices (fuse resistor, radiator plate, etc.).
- When replacing the wiring, make sure that it is not in contact with the unfinished or rough edge of a part.
- When replacing the power cord (except for the plug-in type), tug it from various directions to confirm that it does not slip out of place.
- Spacing
If soldering was done on the AC primary circuit, confirm that the interval between the soldered terminals or between the terminal and surrounding metallic parts is at least the minimum required (between the primary circuit and the chassis: at least 6.5 mm; between primary circuit terminals: at least 4.0 mm; between primary circuit terminals and secondary circuit terminals: at least 6.5 mm).

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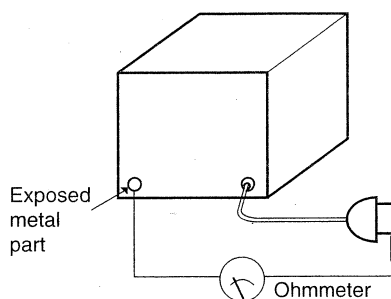
SAFETY PRECAUTION

● Safety Precaution

1. Before servicing, unplug the power cord to prevent an electric shock.
2. When replacing parts, use only the manufacturer's recommended components for safety.
3. Check the condition of the power cord. Replace if wear or damage is evident.
4. After servicing, be sure to restore the lead dress, insulation barriers, insulation papers, shields, etc.
5. Before returning the serviced equipment to the customer, be sure to make the following insulation resistance test to prevent the customer from being exposed to a shock hazard.

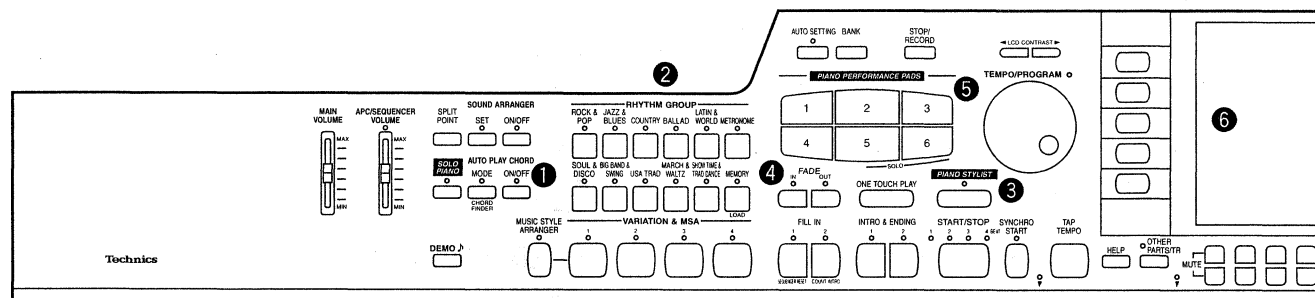
● Insulation Resistance Test

1. Unplug the power cord and short the prongs of the plug with a jumper wire.
2. Turn on the power switch.
3. Measure the resistance value with an ohmmeter between the jumpered AC plug and each exposed metal cabinet part, such as screw heads, connectors, control shafts, handle brackets, etc. Measurements should range from 4 M Ω to infinity for all exposed parts.



Resistance = 4M Ω to ∞

ARRANGEMENT OF CONTROL PANEL



❶ AUTO PLAY CHORD

Add an automatic accompaniment to your selected rhythm.

❷ RHYTHM GROUP

Various rhythm patterns are available for each rhythm group.

❸ PIANO STYLIST

You can choose to have all the settings of this instrument automatically set.

❹ FADE IN/OUT

Begin your song with a slowly increasing volume, or end it by having the sound slowly fade away.

❺ PIANO PERFORMANCE PADS

Add various phrases to your performance with the pad buttons.

❻ DISPLAY

Displays performance information, function settings and other messages.

- Use the LCD CONTRAST buttons to adjust the display so that it is easy to read.

❼ PANEL MEMORY

Store the panel settings, then recall them instantaneously just by pressing a button or two.

❽ CONDUCTOR

Assign a different sound to each part, then assign the desired parts to sections of the keyboard.

❾ TRANSPOSE

Raise or lower the key of the entire keyboard.

❿ TECHNI-CHORD

Block chords are automatically added to the melody.

⓫ SOUND GROUP

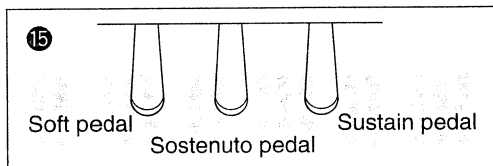
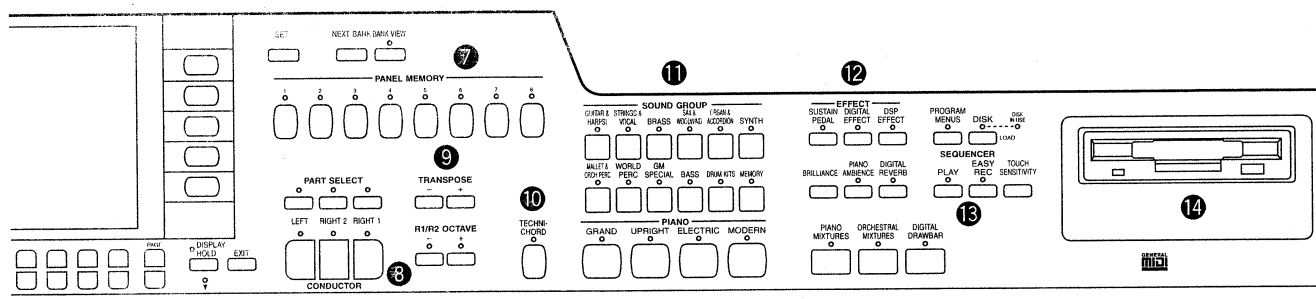
Various sounds are available for each sound group.

⓬ EFFECT

Add various effects to the sounds.

⓭ SEQUENCER

Record and play back your performance.



14 Disk Drive

The Disk Drive allows you to record your performances on a floppy disk, as well as play commercial recorded disks on this instrument.

15 Pedals

The sustain pedal and sostenuto pedal apply sustain effects, and the soft pedal works as a damper.

Tuning

Unlike an acoustic piano, PR Series Digital Ensemble never needs tuning.

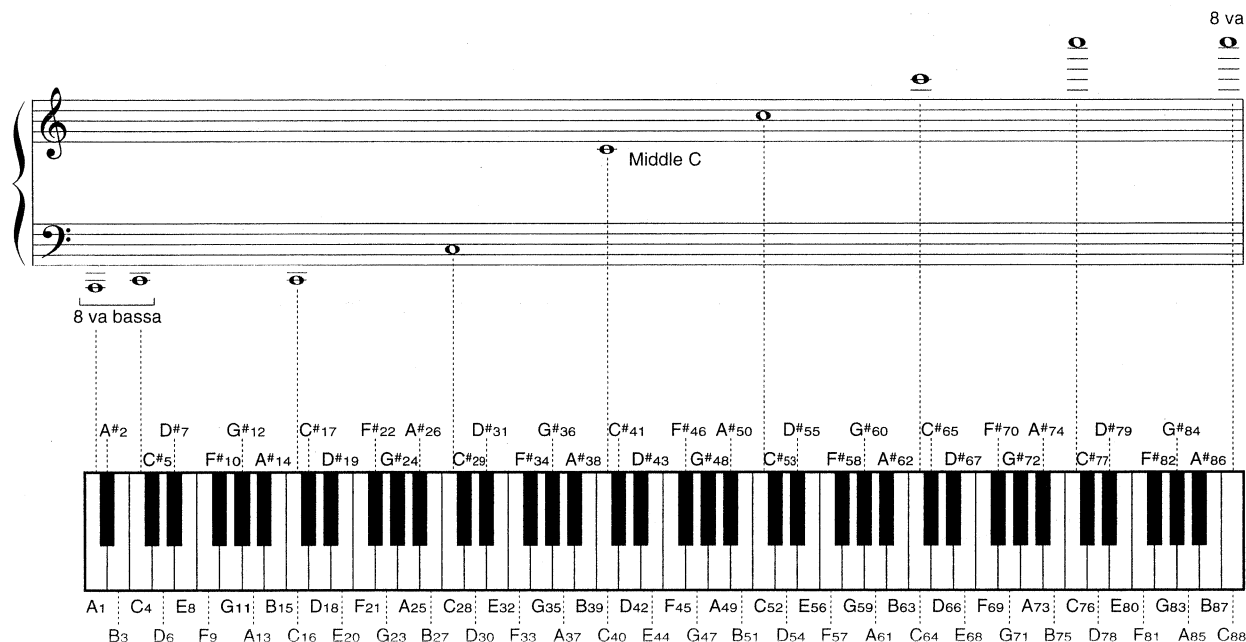
The pitch of this instrument can be adjusted for when playing along with other instruments.

About the backup memory

The settings and memories are maintained for approximately 80 minutes after the power to this instrument is turned off. If you wish to keep the memory contents, before you turn off the instrument, use the SAVE procedure to store the desired data on a disk for recall at a later time.

- The backup memory does not function until the power has been on for about 10 minutes.
- When you quit the operating mode, a REMINDER display may appear to remind you to save the data.

KEYBOARD RANGES



INITIAL SETTING

The following procedure resets all programmable settings, functions and memories to their initialized (factory-preset) status. Use this procedure if the buttons, keys, etc. malfunction, or when you wish to reset the memories and functions.

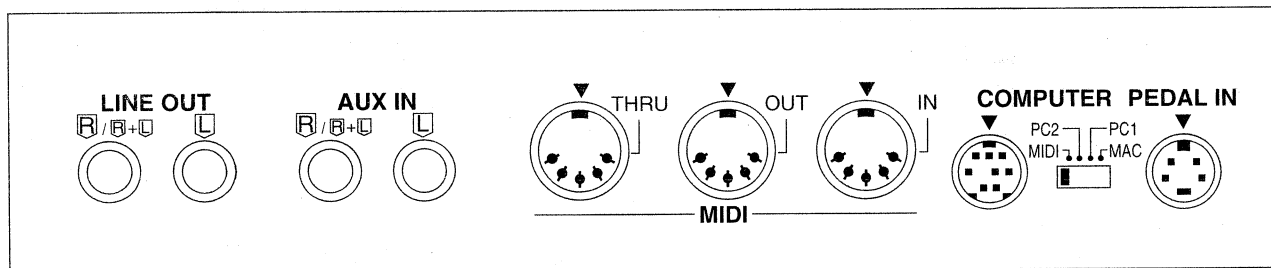
1. Turn off the **POWER** button.
2. While pressing the three lower left buttons in the **RHYTHM GROUP** section (**SOUL & DISCO**, **BIG BAND & SWING** and **USA TRAD**) at the same time, turn the **POWER** button on again.

NOTE:

All stored data in the **SEQUENCER** and **COMPOSER** and other user settings will be deleted with this operation.

TERMINALS

(on the rear panel)



LINE OUT (output level 1.5 Vrms, 600 Ω)

By connecting an external high-power amplifier, the sound can be reproduced at a high volume. To output monaural sound, connect the external equipment to the **R/R+L** terminal. (Do not connect the **L** terminal.)

AUX IN (input level 0.5 Vrms, 6 kΩ)

Other instruments such as a sound generator can be connected to this terminal, and the sound will be output from this instrument's speakers. To receive monaural sound, connect the other instrument to the **R/R+L** terminal. (Do not connect the **L** terminal.)

MIDI

These terminals are for connection to another MIDI instrument.

COMPUTER

By connecting this terminal to the serial port of a computer, performance data can be exchanged. Use the switch to select the type of computer.

- Be sure that the power to this instrument is turned off when connecting to a computer or when changing the switch setting.

Caution:

Failure to turn off the power before changing the switch setting may result in malfunction.

- When no computer is connected, or when a MIDI interface is used, the switch should be set to MIDI.

Connection to a Macintosh series computer

Use an **ACCESSORY CABLE** (SZ-JJAP1: sold separately) to connect the **COMPUTER** terminal of this instrument to the modem port or printer port of a Macintosh Series computer. Set the switch to **MAC**.

- Set the MIDI interface clock of the Macintosh software to 1 MHz.
- Do not remove the core at either end of the cable.

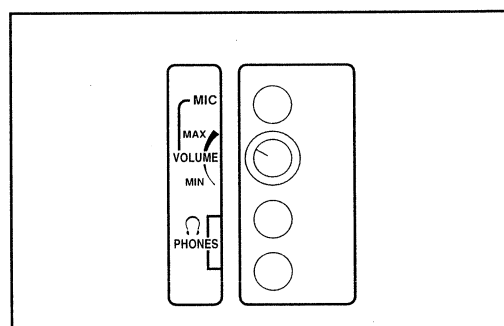
Connection to a PC

Use an **ACCESSORY CABLE** (SZ-JJAT1: sold separately) to connect the **COMPUTER** terminal of this instrument to the RS232C terminal of a PC. Set the switch to **PC2**.

- The MIDI driver included with the cable should be installed in the computer. (Refer to the manual accompanying the cable.)
- Do not remove the core at either end of the cable.

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(beneath the left end of keyboard)



PHONES ×2

Headphones can be connected to this instrument.

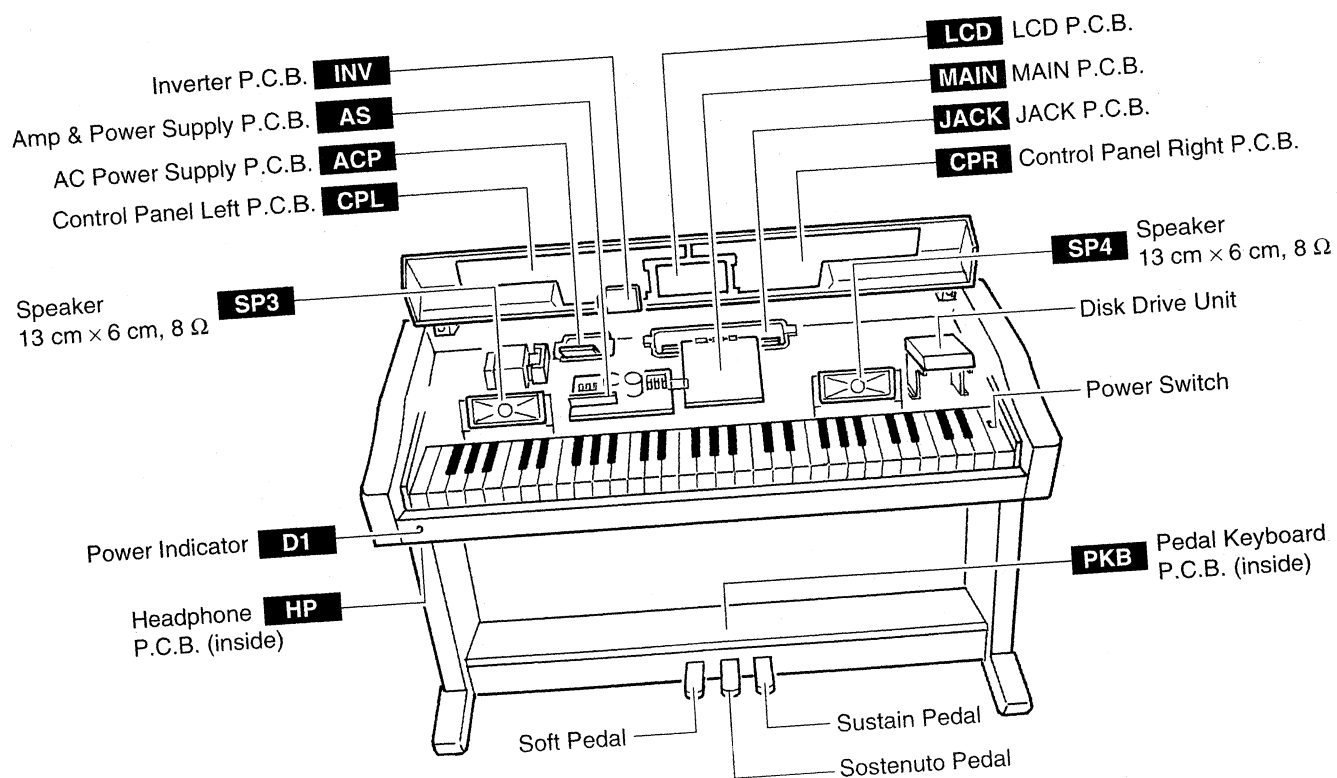
- When headphones are plugged into this jack, the speakers of this instrument are disabled.

MIC

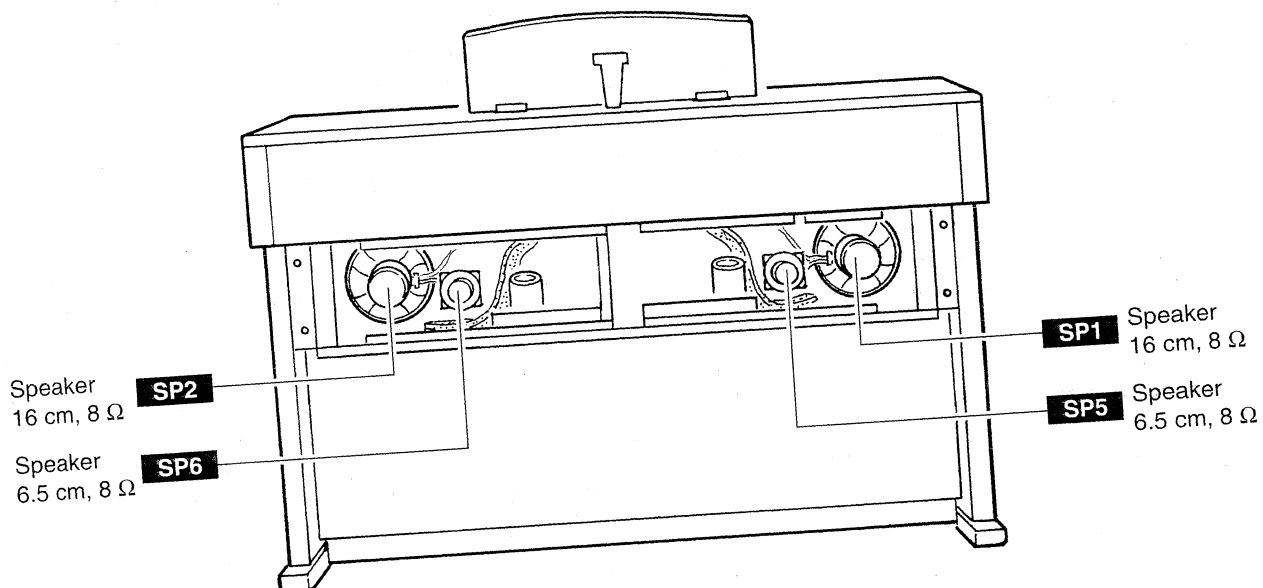
A microphone can be connected to this instrument and the sound output through the speakers. Use the **VOLUME** control to adjust the volume.

- Effects such as reverb can be applied to the microphone input.

PARTS LOCATION



[Fig. 1]

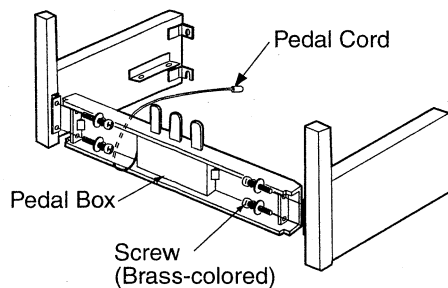


[Fig. 2]

HOW TO ASSEMBLE THE PIANO

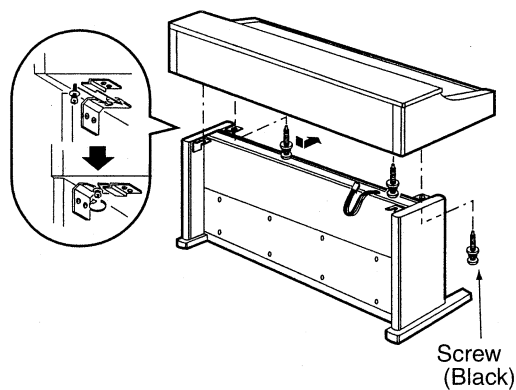
To prevent the piano unit from falling off the stand, secure it firmly with the screws.

- 1 Assemble the right and left side planks and the pedal box with the 4 brass-colored screws.
 - Loosen the pedal cord, stowed on the inner side of the pedal box, and extend it.



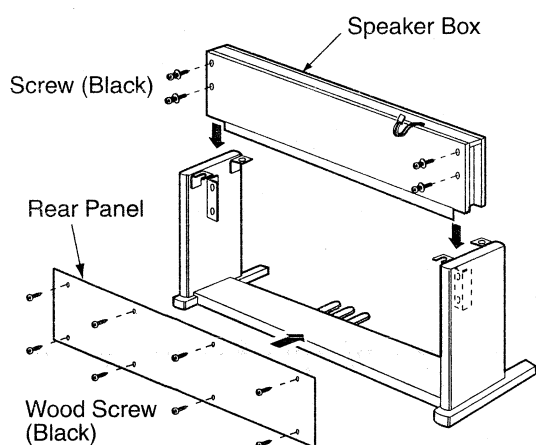
[Fig. 3]

- 3 Place the piano unit on the stand and secure it with 4 black screws.



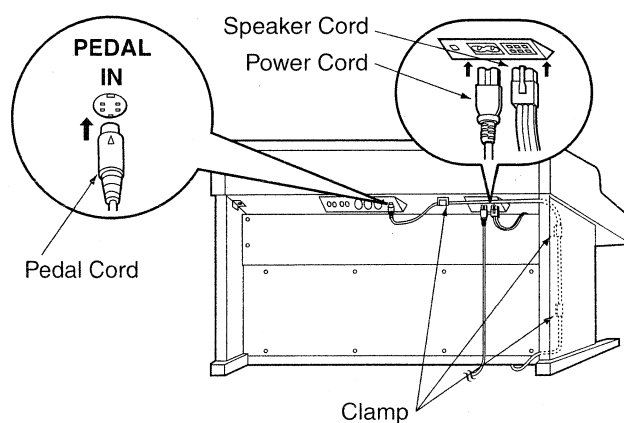
[Fig. 5]

- 2 Place the stand upright and mount the speaker box onto the L-shaped brackets with 4 black screws. And mount the rear panel with 8 black wood screws.



[Fig. 4]

- 4 Connect the pedal cord, speaker cord and power cord to the terminals located on the rear of the piano unit as shown below.

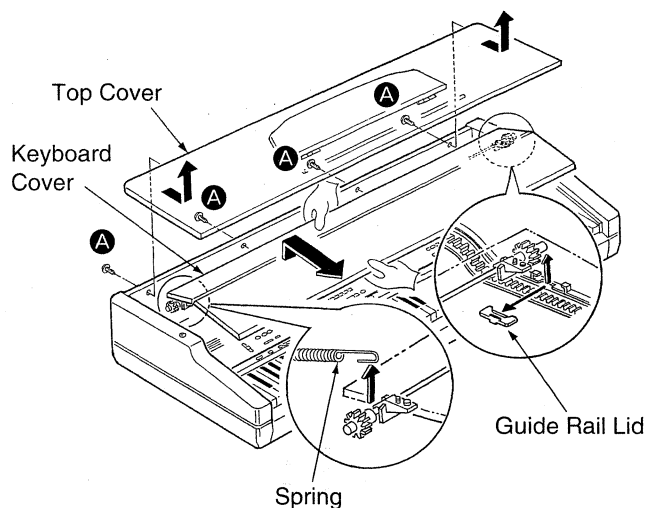


[Fig. 6]

DISASSEMBLY INSTRUCTIONS

1 Removing the top cover

1. Remove the top cover mounting screws (A 4 pcs.).
2. Lift up the top cover (as shown by the arrows).



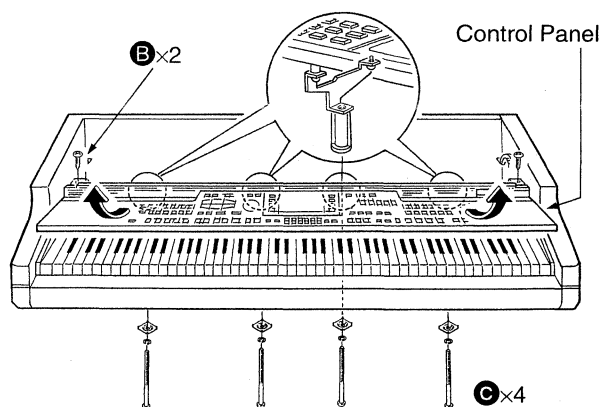
[Fig.7]

2 Removing the keyboard cover

1. Remove the top cover (see step 1).
2. Release the spring from the shaft.
3. Remove the guide rail lids from the guide rails.
4. Match the gears of the keyboard cover with the notches in the guide rails and lift up the keyboard cover, and slide it forward (as shown by the arrow).

3 Removing the control panel

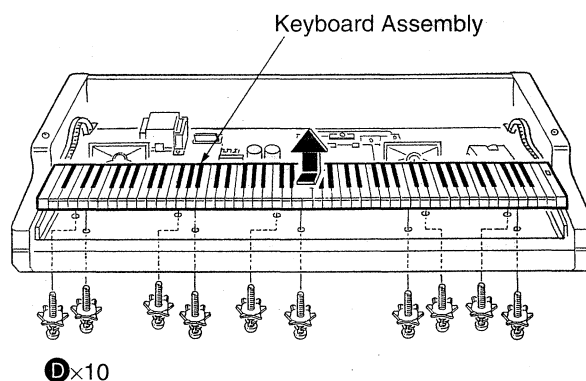
1. Remove the keyboard cover (see step 2).
2. Remove the control panel mounting screws (B 2 pcs. and C 4 pcs.).
3. Remove the control panel as shown by the arrows.



[Fig.8]

4 Removing the keyboard assembly

1. Remove the control panel (see step 3).
2. Remove the keyboard assembly mounting screws located on the bottom of the cabinet (D 10 pcs.).
3. Remove the keyboard assembly as shown by the arrow.



[Fig.9]

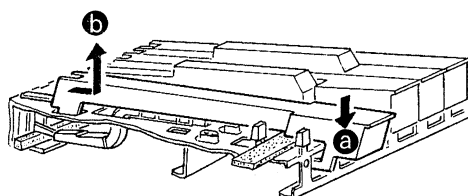
5 Key(s)

Disassembly

1. Remove the keyboard assembly (see step 4).
2. Release the key claw.
 - a Press the front of the key downward slightly.
 - b Press the rear of the key forward gently.
3. To remove the key, lift it as shown in Fig. 10.

NOTE:

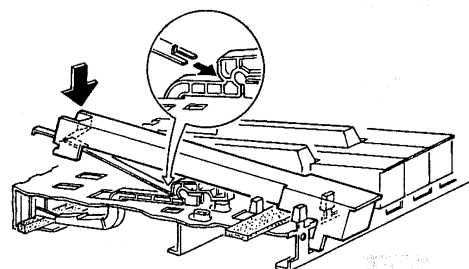
- The key claw is easily broken. Do not apply undue force. Should a key claw break, it can still be used; however, a replacement is recommended.
- If a black key is to be replaced, it is necessary to remove both adjacent white keys.



[Fig.10]

Assembly

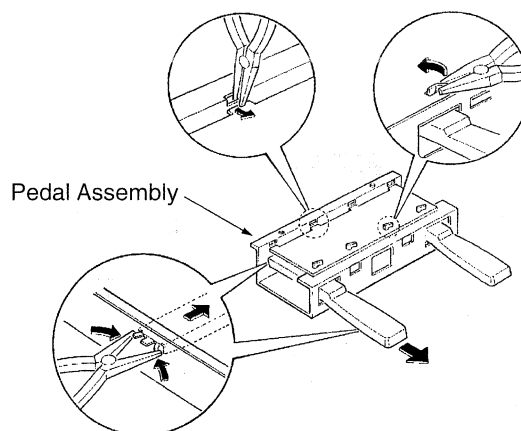
1. Insert the front part of the key into the chassis.
2. Insert the plate spring into the hammer notch as shown in Fig. 11.
3. While slowly lowering the key into the chassis, insert the plate spring into the notch at the rear of the key.
4. Carefully insert the key into the opening in the chassis and slide the key towards the rear to lock it in place.



[Fig.11]

6 Disassembly of the pedal assembly

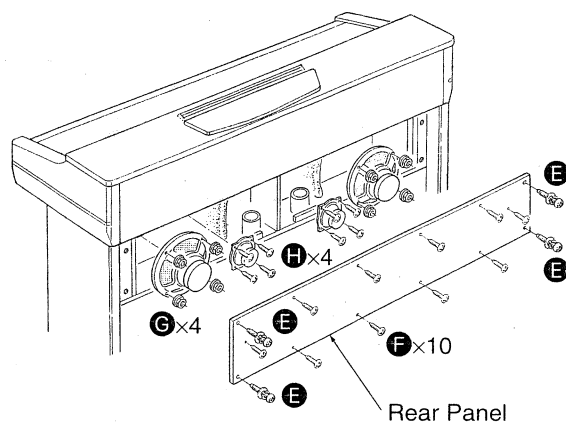
1. Remove the pedal assembly from the pedal box.
2. Disassemble the pedal assembly as shown in Fig. 12.



[Fig.12]

7 Removing the speakers

1. Remove the rear panel mounting screws (E 4 pcs. and F 10 pcs.).
 - Be careful that the speaker box does not fall off, since it comes free of the L-shaped bracket of the stand.
2. Remove the 16 cm speaker mounting nuts (G 4 pcs.).
3. Remove the 6.5 cm speaker mounting screws (H 4 pcs.).



[Fig.13]

8 Removing the MAIN, AS, JACK, HP, ACP, LCD P.C.B.

- Remove the keyboard cover (see step [2]).
- Pull out the connectors on the printed circuit boards.

MAIN P.C.B.

1. Remove the MAIN P.C.B. mounting screws (I 2 pcs.).
2. Release the claws of the 3 P.C.B. holders.

AS P.C.B.

1. Release the claws of the 9 P.C.B. holders.

JACK P.C.B.

1. Remove the MAIN P.C.B.
2. Remove the JACK P.C.B. mounting screws (J 4 pcs.).
3. Remove the ground wire mounting screws (K 3 pcs.).

HP P.C.B.

1. Remove the keyboard assembly (see step [4]).
2. Remove the HP P.C.B. mounting screws (L 2 pcs.).
3. Pull out the volume control knob.
4. Remove the headphone jack mounting nuts (M 4 pcs.).

ACP P.C.B.

- Release the claws of the AC IN connector bracket.

LCD P.C.B.

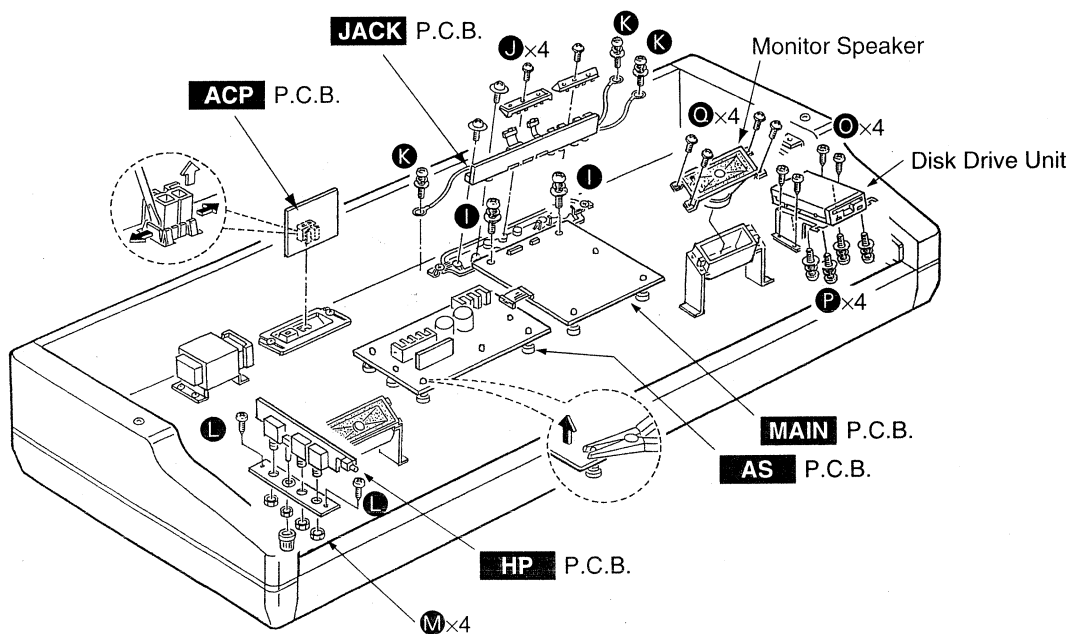
1. Remove the control panel (see step [3]).
2. Remove the LCD P.C.B. mounting screws (N 6 pcs.).

9 Removing the Disk Drive unit

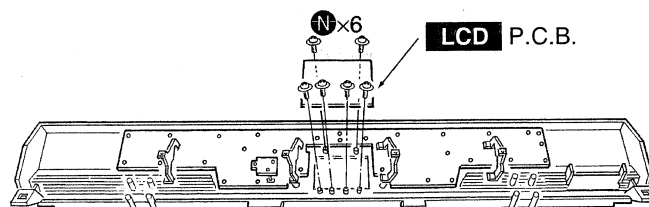
1. Remove the keyboard cover (see step [2]).
2. Pull out the connector from the Disk Drive unit.
3. Remove the chassis on which Disk Drive unit is attached (O 4 pcs.).
4. Remove the Disk Drive unit mounting screws (P 4 pcs.).

10 Removing the monitor speakers

1. Remove the keyboard cover (see step [2]).
2. Remove the monitor speaker mounting screws (O 4 pcs.).



[Fig.14]



[Fig.15]

SYMPTOMS WHICH APPEAR TO BE SIGNS OF TROUBLE

The following changes in performance may occur in this instrument but do not indicate trouble.

		Phenomenon	Remedy
Sounds and effects		The buttons, keys, etc. malfunction.	• Turn off the POWER button once, then turn it on again. If this procedure is not successful, turn off the POWER button once. Then, while pressing the three lower left buttons in the RHYTHM GROUP section (SOUL & DISCO, BIG BAND & SWING and USA TRAD) at the same time, turn the POWER button on again. (Note that, in this case, all programmable settings, functions and memories return to their factory-preset status.)
		No sound is produced when the keys are pressed.	• The MAIN VOLUME is at the minimum setting. Adjust the volume with the MAIN VOLUME control. • The volumes for the selected parts are set to the minimum levels. Use the balance buttons to set the volumes of the relevant parts to appropriate levels. • The part is muted. • The LOCAL CONTROL for a part performed on the keyboard is set to OFF. Set the LOCAL CONTROL to ON.
		Only percussive instrument sounds are produced when the keyboard is played.	• In the SOUND GROUP section, the DRUM KITS button is on.
		The volume is very low when the keyboard is played.	• The volume setting in the SEQUENCER contents is very low. Follow the INITIAL procedure to reset the settings.
		Some sounds cannot be selected.	• When the GENERAL MIDI status is set to ON, The sounds which can be selected and operation which can be executed are limited. Turn the GENERAL MIDI status OFF to return the instrument to its normal operation.
		The sound you hear is different from the sound you selected.	• This sometimes occurs when you play back SEQUENCER or COMPOSER data which was created on a different model, or when MIDI data is received from a connected instrument. Select the desired sounds again.
		The sustain does not work even when the sustain pedal is depressed.	• The sustain pedal is not connected. Connect the pedal cord firmly to the PEDAL IN terminal on the back of the instrument. • When the SUSTAIN PEDAL button is off, the sustain does not work even when the pedal is depressed. Turn on the SUSTAIN PEDAL button.
		The sostenuto pedal and soft pedal do not operate properly. For example, when the soft pedal is depressed, the rhythm starts or a fill-in is played.	• Different functions can be programmed in these pedals. You can return the pedals to their original functions by turning off the instrument once, or by using the PEDAL SETTING mode.

Phenomenon		Remedy
Rhythm	The rhythm does not start.	• The DRUMS volume is set to the minimum level. Use the balance buttons to set the DRUMS volume to an appropriate level. • The Classic Ballad rhythm of the BALLAD group is selected. Use the AUTO PLAY CHORD in your performance. • A SEQUENCER PLAY button is on. When you are not playing back the SEQUENCER performance, turn off the SEQUENCER PLAY button. • CLOCK is set to MIDI. Set CLOCK to INTERNAL. • The rhythm does not work when the GENERAL MIDI mode is set to ON. Turn the GENERAL MIDI status OFF to return the instrument to its normal operation.
AUTO PLAY CHORD	No sound is produced for the automatic accompaniment, or only the sounds of some parts are produced.	• An ACCOMP part does not sound if its corresponding volume is set to the minimum level. Use the respective balance buttons to set the ACCOMP 1, 2 and 3 volumes to appropriate levels.
SEQUENCER	Storage is not possible.	• The remaining memory capacity of the SEQUENCER is 0. Follow the SONG CLEAR or TRACK CLEAR procedure to erase the memory.
	The playback measure indication is different from when the performance was recorded.	• The number of measures corresponds to the time signature of the rhythm selected at the start of recording. To change the rhythm in the middle of the song, record the rhythm change in the RHYTHM part.
COMPOSER	Storage is not possible.	• The remaining memory capacity of the COMPOSER is 0.
	Setting the time signature and number of measures is not possible.	• The time signature and number of measures cannot be changed for a pattern which is currently recorded in the COMPOSER. If you wish to change the time signature and/or measure data, first follow the procedure to clear the memory.
	The playback timing of the rhythm pattern is different from the timing with which it was recorded.	• The QUANTIZE function was on when the pattern was recorded and the timing was automatically corrected. Set the quantize level to a smaller note unit or to OFF when recording.

Phenomenon		Remedy
Disk Drive	The Disk Drive produces a noise during recording or playback.	• This occurs when the Disk Drive is reading a disk. It does not indicate a problem.
	When the procedure to load from a disk is performed, the contents of the instrument's memory are erased.	• When performing the load operation from a disk, this instrument's memory changes to that of the data loaded from the disk. If you wish to preserve a song which is stored in the instrument's memory, save it on a disk before performing the load procedure.
MIDI	Data cannot be exchanged through MIDI terminals.	• The switch for the COMPUTER terminal is not set to MIDI. Turn off the power to this instrument and set the switch to MIDI. • Match the channels on the transmitting side and the receiving side.
	The sound quavers or is distorted.	• When the COMPUTER terminal or both the MIDI IN and OUT terminals are connected to a computer, depending on the computer software the received data may be sent back to the instrument just as it is. Because of this the sound generated from the keys and the sound generated from the returned data are both produced, causing undesirable effects, such as the sounds canceling each other out, for example. In this case, either change the software settings to prevent received data from being returned, or set the MIDI LOCAL CONTROL to off.
Other	Noise from a radio or TV can be heard.	• This sometimes occurs when electrical equipment such as a radio or TV is used near the instrument. Try moving such electrical equipment further away from the instrument. • The sound may be coming from a nearby broadcast station or amateur radio station. If the sound is bothersome, consult your dealer or service center.
	The cabinet becomes warm during use.	• This instrument has a built-in power source that heats the cabinet to some degree. This is not an indication of trouble.

ERROR DISPLAY

No.	Contents
00	The data on the disk that you are using is for a different product.
01	An error has occurred while the disk was loading. Please try again!
02	There is no disk in the Disk Drive.
03	The file that you tried to load is empty.
05	An error has occurred while the disk was saving. Please try again!
06	The disk that you are using is write protected. Please remove the write protection and try again.
07	The disk that you are using is full. Please use another disk.
08	An error has occurred while the disk was formatting. The disk that you are using may be faulty. Please try formatting another disk.
10	The data is already copy protected.
15	The song you are trying to save is empty.
16	This STANDARD MIDI FILE is incompatible with the PR and cannot be loaded.
17	This is not a STANDARD MIDI FILE.
18	The timebase (PPQ resolution) that you tried to load is not 24/48/96/192/288/384 PPQ.
19	This is a FORMAT 1 MIDI FILE disk and cannot be played back.
20	A problem has occurred with your SEQUENCER Data. This might be due to a damaged or faulty disk.
21	Memory full
22	It is necessary to press PUNCH OUT to complete this procedure.
23	It is impossible to change the time signature because it has already been set in the existing tracks.
24	A rhythm track already exists. It is impossible to assign two tracks to rhythm.

No.	Contents
25	It is only possible to change the velocity on a melody track.
26	It is only possible to merge melody tracks. Tracks such as rhythm, chord and control cannot be merged.
27	It is only possible to copy melody tracks. Tracks such as rhythm, chord and control cannot be copied.
28	This song is too long to be saved as a MIDI file.
29	The MIDI file that you have tried to load exceeds the memory capacity of this instrument and cannot be played. The SEQUENCER memory has been cleared.
30	It is not possible to change the time signature or measure length of a COMPOSER pattern after it has been recorded. If you want to proceed, you must first clear the entire COMPOSER pattern.
31	The time signature of the pattern from which you are copying is different from the COMPOSER memory that you are using. Either: Change the time signature of the COMPOSER memory or: Copy from a pattern that has the same time signature
32	Memory full
33	Select a Track before setting parameters for AUTO PUNCH RECORD.
43	The file that you are trying to load was saved on a previous KN keyboard. It is only possible to load using the "PERFORMANCE" option.
46	It is only possible to insert MELODY Tracks. Tracks such as RHYTHM, CHORD and CONTROL cannot be inserted.
47	This procedure is not possible with a composer pattern or the metronome. Please select a preset rhythm pattern.
54	Please select a USER bank.

No.	Contents
55	Special tracks such as CHORD (APC), RHY and CTL exist in the song from which you are copying and are incompatible with the destination song because it is in the GM mode.
56	AUTO PUNCH recording has been unsuccessful because SEQUENCER operation was interrupted before the PUNCH OUT measure was reached.
58	The song that you have tried to load exceeds this instrument's available memory and cannot be loaded. The selected song memory has been cleared. Please clear existing songs in the instrument's memory using SONG CLEAR to make more memory available, and try again.
59	RKB and LKB are special tracks for compatibility with SEQUENCER data from previous PR products. They cannot be edited or recorded on.
60	RKB and LKB are special tracks which cannot be used in conjunction with RIGHT 1, RIGHT 2, LEFT and APC tracks. Please re-assign RKB and LKB to any other part and try again.
62	The computer connection is not active because the computer port switch is set to MIDI. Please turn the power off, set the switch to the desired setting and turn the power back on.
64	Please select the Panel Memory that you want to name.
65	It is not possible to use the CHORD FINDER in this mode. Please select CHORD FINDER from HOME page or CHORD STEP RECORD page.
66	SOLO pads are special pads which include Chord information. Please use SOLO pads when the rhythm and accompaniment is playing.
67	There are no APC or CHORD tracks. Select an APC track or CHORD track, and try again.
68	It is not possible to record directly into the SOLO pads. Record on the SEQUENCER and Copy the melody and chord information into a SOLO pad.

ABOUT THE SELF-DIAGNOSTIC FUNCTION

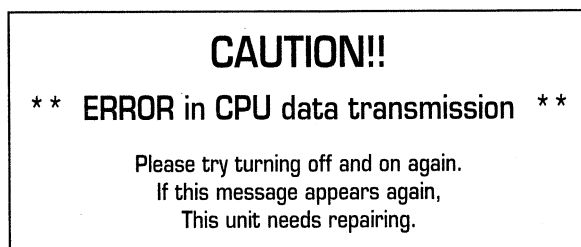
This model has some self-diagnostic capabilities. There are two types of self-diagnostic functions: the "power on self-test" which runs a test when the power is turned on and notifies the user if an error is detected, and the "service mode" which is used when servicing the unit.

■ Power on self-test

This model runs the following self-diagnostic test when power is turned on. If an error is detected, a message is displayed on the LCD to notify the user.

Communication check between the Control Panel CPU (CPL P.C.B.: IC1/CPR P.C.B.: IC1) and the MAIN CPU (MAIN P.C.B.: IC6)

When power is turned on, the model checks communications between the MAIN CPU and each Control Panel CPU. If an error is detected, the following message is displayed on the LCD.



If this error occurs, perform the Control Panel CPU check from within the service mode. Using the self-diagnostic function, it is possible to determine which CPU (CPL/CPR P.C.B.) is suffering trouble.

■ Service mode

The service mode makes it possible to determine whether the various test modes pass or fail.

The test modes in the following table are presented in an order based on circuit operation, but they are completely independent of one another. Select a mode as necessary, and run the test or check.

No.	Diagnostic Part/Diagnostic Device	Procedure of Service Mode
1	MAIN P.C.B.: MAIN CPU peripheral device 1. DRAM (IC13) 2. DRAM (IC11) 3. EEROM (IC8) 4. Unassigned 5. PROGRAM ROM (IC4) 6. PROGRAM ROM (IC2) 7. TABLE DATA ROM (IC7) 8. TABLE DATA ROM (IC5) 9. RHYTHM DATA ROM (IC14) 10. Unassigned 11. LCD CONTROLLER (IC16) 12. Unassigned	1. Connect the CHECKING DEVICE (refer to page I-20) to CN4 on the MAIN P.C.B.. 2. Turn on the power switch while holding down the CHECKING DEVICE switch.

When the power switch is turned on, the LED of the CHECKING DEVICE flashes 12 times . The order of the LED flashes corresponds to the IC number on the respective P.C.B.s as shown below. If an IC is defective, the corresponding flash time is longer.

Examples

1. MAIN P.C.B./
MAIN CPU ICs OK

2. EEROM (IC8) defective

3. PROGRAM ROM (IC4)
defective

1

2

3

4

5

6

7

8

9

10

11

12

13

●

●

—

●

●

●

●

●

●

●

●

●

●

IC13

IC11

IC8

Unassigned

IC4

IC2

IC7

IC5

IC14

Unassigned

IC16

Unassigned

NOTE : ● indicates short flash time

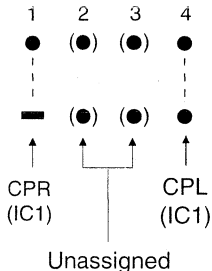
— indicates long flash time

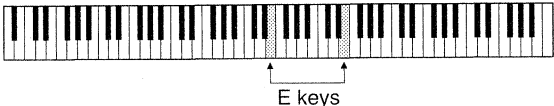
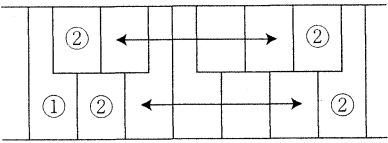
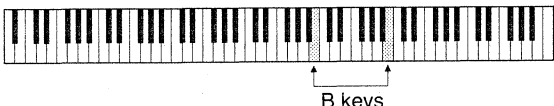
After flashing 12 times, the
KEYBOARD SWITCH
SCANNING test mode is
engaged.

• **KEYBOARD SWITCH SCANNING test**

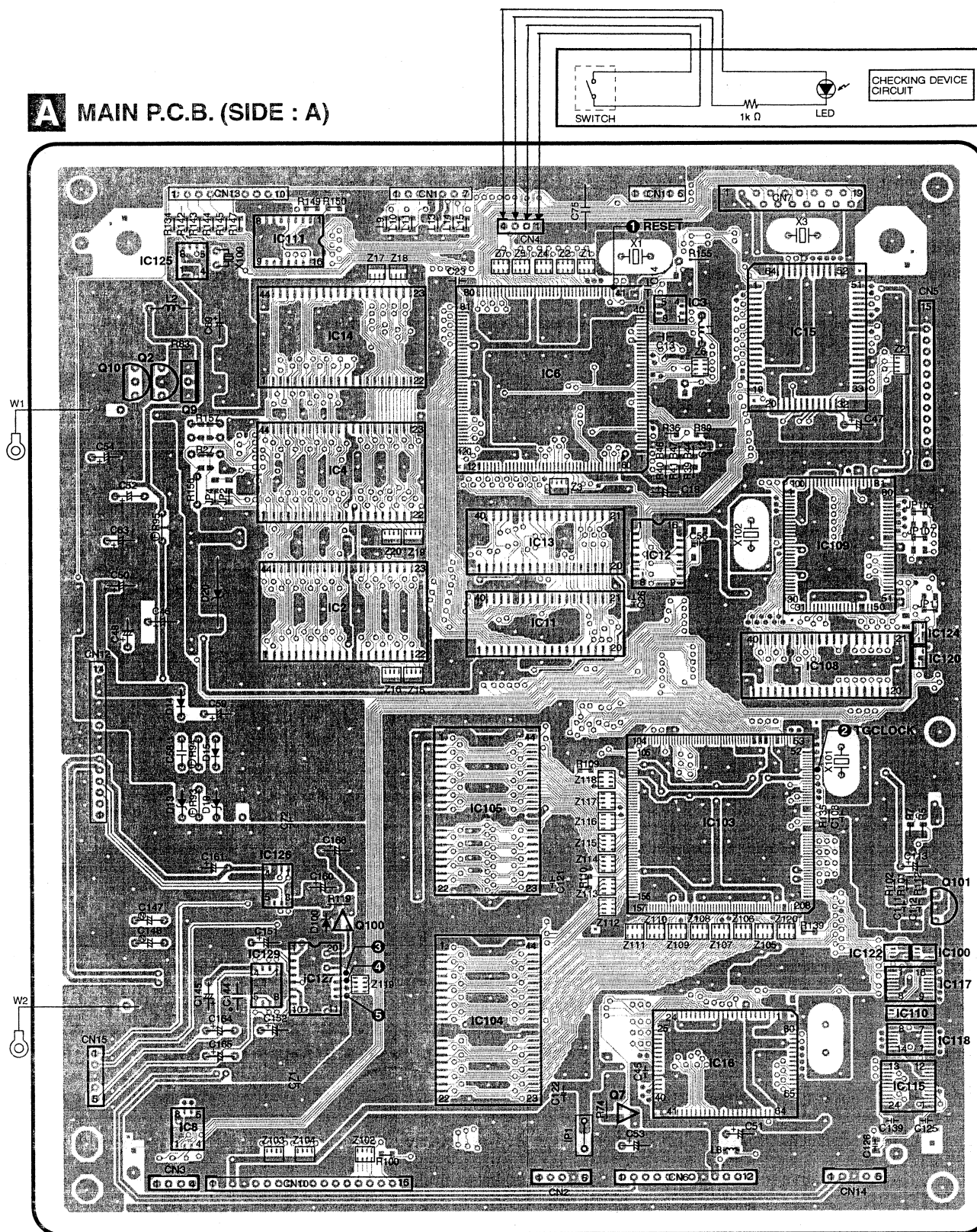
When the power switch is turned on, the LED of the CHECKING DEVICE flashes 12 times and then engages the KEYBOARD SWITCH SCANNING test mode. (see the figure above.)

Pressing any of the 88 keys will light the LED of the CHECKING DEVICE, while the LED will go out when the key is released. The KEYBOARD SWITCH SCANNING test determines whether the key switches and the Tone Generator LSI (MAIN P.C.B.: IC103) are working properly or not.

No.	Diagnostic Part/Diagnostic Device	Procedure of Service Mode
2	LCD test	Turn on the power switch while holding down the two G keys shown below.  G keys
		While the message "LCD PANEL TEST" is displayed on the LCD, the entire screen is repeatedly switched in the order of white → black → "H" pattern. * "H" pattern is a big "H". It is used to check for crosstalk.
3	CPR/CPL P.C.B.: 1 chip Microcomputer (IC1) check	1. Connect the CHECKING DEVICE (refer to page I-20) to CN4 on the MAIN P.C.B.. 2. Turn on the power switch while holding down the CHECKING DEVICE switch and the two D keys shown below.  D keys
	When the power switch is turned on, the LED of the CHECKING DEVICE flashes 4 times . The order of the LED flashes corresponds to the Microcomputer (IC) number on the respective P.C.B.s as shown below. If an IC is defective, the corresponding flash time is longer. Examples 1. CPR (IC1), CPL (IC1) OK → 2. CPR (IC1) defective, CPL (IC1) OK → NOTE : ● indicates short flash time ■ indicates long flash time * The results of the above test are display on the LCD at the same time as well.	
4	CPR/CPL P.C.B.: Control Panel switch and LED check	Turn on the power switch while holding down the two F keys shown below.  F keys
		First, all of the LEDs on the Control Panel will light up simultaneously. Check that they do. Then, press the buttons on the Control Panel and confirm that the corresponding LED lights. For buttons without LEDs, the 4 BEAT display LEDs by the START/STOP button will light up simultaneously. To light up all of the LEDs on the Control Panel, press DEMO button.

No.	Diagnostic Part/Diagnostic Device	Procedure of Service Mode
5	MAIN P.C.B.: Wave ROM (IC104-107) check	Turn on the power switch while holding down the two E keys shown below.  E keys When set to the self-diagnostic mode, the Wave ROM output a sine wave. The Wave ROMs correspond to the keyboard keys as shown in the diagram to the right. When a key is pressed, the corresponding sine wave sound is produced. If no sound is produced, or if the sound is distorted, the Wave ROM corresponding to the key is defective. * A more detailed explanation as to setting conditions and other matters will be displayed on the LCD for your reference. The key number indicates the Wave ROM number. (①: IC104/105, ②: IC106/107) 
6	MAIN P.C.B.: FDC IC (IC15) test	Turn on the power switch while holding down the two A keys shown below.  A keys The test results on the FDC IC will be displayed on the LCD. NOTE: This test only checks communications between the FDC IC and MAIN CPU. It does not test operation of the FDC IC itself, the route from the FDC IC to Floppy Disk Drive operation. To include the Floppy Disk Drive in testing, use the "Floppy Disk Drive SAVE/LOAD test" described below.
7	Floppy Disk Drive: SAVE/LOAD test	1.Insert the floppy disk formatted into the Disk Drive. 2.Turn on the power switch while holding down the two B keys shown below.  B keys Pressing the button below the "▶" displayed on the LCD starts the Floppy Disk Drive SAVE/LOAD test. The test is carried out repeatedly. Data is saved and loaded, and then the two data sets are compared. The number of times the test results "OK" or "NG" are counted and displayed on the LCD. To stop the test, press the button below the "■" displayed on the LCD. Even when the Floppy Disk Drive is functioning properly, the test can result "NG". If this happens frequently, clean the magnetic heads of the Floppy Disk Drive with a cleaning disk. Then, change the disk used in testing with another disk and reperform the test. If the trouble is not solved, it is likely that the Disk Drive unit or some other part of the hardware is broken.

■ Connection between serving CHECKING DEVICE and MAIN P.C.B.



PRECAUTIONS BEFORE SERVICING

■ Precautions for measuring of the output waveforms.

1. The waveform was measured with a "National Digital Storage Oscilloscope VP-5730A". Therefore the waveforms of musical tone signals shown may differ somewhat due to the difference in the timing of triggering.
2. Since the 1/10 test probe is used, the indicated voltage value on the bottom part of each waveform illustration is 1/10 of the actual value (e.g. 0.2 V/cm should be 2.0 V/cm).
3. To measure the waveforms, first set this unit to the self-diagnostic mode (refer to page I-19, No. 5). The Wave ROM output will then be output as a sine wave to facilitate the servicing check.

■ Important safety notice:

Components identified by a  mark have special characteristics important for safety. When replacing any of these components, use only manufacturer's specified parts.

■ Symbolic Marks

The symbolic marks for resistors and capacitors which used in this circuits are classified as following TABLE-1 and TABLE-2.

1. RESISTORS

- Resistors without symbolic mark are FIXED CARBON FILM RESISTORS (ERD-type).
- All resistors are 1/4 WATT, $\pm 5\%$ TOLERANCE unless otherwise designated in schematic diagrams.

(TABLE-1)

SYMBOL	SPECIFICATION	SYMBOL	SPECIFICATION
	Fixed Carbon Film Resistors "FLAME-PROOF" (ERD—F—type)		Fixed Metal Film Resistors "FLAME-PROOF" (ERX—type)
	Fixed Wire Wound Resistors "FLAME-PROOF" (ERF—type)		Fuse Type Fixed Metal Oxide Film Resistors "FLAME-PROOF" (ERQ—type)
	Fixed Metal Oxide Film Resistors "FLAME-PROOF" (ERG—type)		Fuse Type Fixed Carbon Film Resistors "FLAME-PROOF" (ERD2FC—type)
	Fixed Metal Film Resistors (Precision and High Stability) (ERO—type)		

2. CAPACITORS

- Capacitors without symbolic mark are POLYESTER CAPACITORS. (ECQM-type, ECQG-type, $\pm 10\%$ Tolerance)
- Polarized capacitors without symbolic mark are Aluminum Electrolytic Capacitors. (ECEA-type, $\pm 20\%$ Tolerance)

(TABLE-2)

SYMBOL	SPECIFICATION	TYPE
	Non-Polarized Electrolytic Capacitors	ECEA_KN_type
	Non-Polarized Electrolytic (for Network system)	ECEA_Y_type
	Tantalum Solid Electrolytic Capacitors	ECS_type
	Metalized Plastic Film Capacitors (TF Series)	ECQV_type
	Temperature Compensating Ceramic Capacitors	ECC_type
	High-Dielectric Constant Ceramic Capacitors	ECK_type ECR_type
	Axial Lead Ceramic Capacitors	ECB_type
	Metalized Polyester Film Capacitors for Across the Line	ECQ_EW_type
	Aluminum Electrolytic Capacitors for Smoothing Circuit	ECES_type
	Multilayer Ceramic Chip Capacitors	ECUV_type

PRECAUTIONS BEFORE SERVICING THE MAIN CIRCUIT

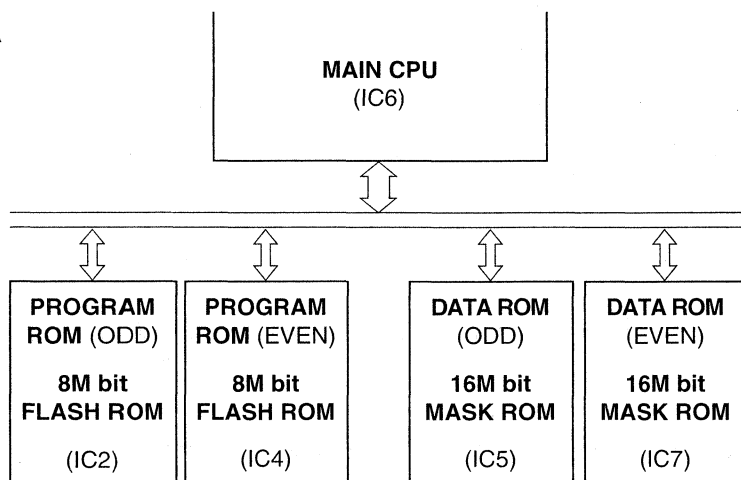
Note: In the initial production (over several months) of this model (Type A), FLASH ROMs (EEPROM) were used for the PROGRAM ROMs. In models produced thereafter (Type B), FLASH ROMs were not used. If changing any of these ICs, service the MAIN CIRCUIT as explained here following.

■ About the FLASH ROM

The FLASH ROM can be electrically erased and rewritten. This model is designed so that the repair technician can easily write and change programs and data in the FLASH ROM, by using a floppy disk.

Block Diagram of MAIN CIRCUIT CPU and peripheral ICs

TYPE A

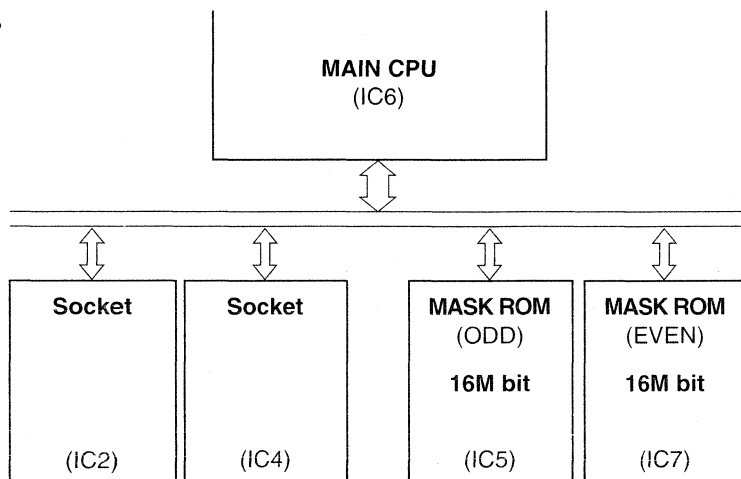


* FLASH ROM contents

IC2: MAIN CPU program (ODD)

IC4: MAIN CPU program (EVEN)

TYPE B



■ How to distinguish Type A from Type B

While pressing **PANEL MEMORY** buttons **1**, **2** and **3** at the same time, turn the power on. The model type can be determined from the resulting display.

For Type A, "DEVICE=FLASH ROM" is shown on the display.

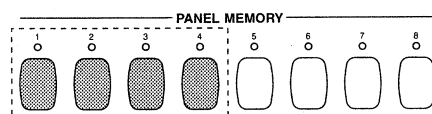
For Type B, "DEVICE=MASK ROM" is shown on the display.

■ Notes on replacing FLASH ROMs for Type A

The replacement parts include a FLASH ROM with a available memory and the "PROGRAM DISK" which contains the program to be written into the FLASH ROM. After replacing the FLASH ROM, always write the program into it from the floppy disk included in the replacement parts. For details on programming, see "How to write the program/data to the FLASH ROMs for Type A (or for Type B in which the FLASH ROMs has been installed in the sockets" below.

■ How to write the program/data to the FLASH ROMs for Type A (or for Type B in which the FLASH ROMs has been installed in the sockets)

- ① Load the "PROGRAM DISK" included in the replacement parts into the Floppy Disk Drive.
- ② Hold down the **PANEL MEMORY** buttons 1, 2, 3 and 4, and turn on the power switch.
- ③ Check "Flash Memory Update" is displayed on the LCD. Only then, release the **PANEL MEMORY** buttons. The program will be written into the FLASH ROM automatically.



- ④ When the operation is complete, "Completed!!" will be displayed on the LCD. Turn the power switch off and then back on again. Check the instrument is functioning properly.

■ How to write the program for Type B

Follow the steps below to write the program for Type B model in which the FLASH ROMs have not been installed.

- ① Install the FLASH ROMs in the unused sockets.
- ② Change the jumper wire settings as follows:
Discontinued: JP5, JP8, JP10
Added: JP6, JP7, JP9
- ③ Write the program/data in the same manner as for Type A, above.

MIDI IMPLEMENTATION CHART

Digital Ensemble [SX-PR702/PR702M]

(Transmitted)

Function		RIGHT1,2,LEFT, PART4~15	PART16	ACMP1	ACMP2,3	BASS	DRUMS	CHORD	CONTROL	Remarks
Basic Channel	Default	1-16	1-16	1-16	1-16	1-16	1-16	1-16	1-16	memorized
	Changed	1-16	1-16	1-16	1-16	1-16	1-16	1-16	1-16	
Mode	Default	3	3	3	3	3	3	3	3	OMNI OFF,POLY MODE
	Messages	×	×	×	×	×	×	×	×	
	Altered	—	—	—	—	—	—	—	—	
Note Number		0-119	0-127	0-119	0-119	0-119	0-127	0-119	—	Changes depending on the position of the transpose control,octave shift,and drums type.
	True voice	—	—	—	—	—	—	—	—	
Velocity	Note ON	○	○	○	○	○	○	○	—	
	Note OFF	×	×	×	×	×	×	×	—	
After Touch	Key's	×	×	×	×	×	×	×	—	Transmitted during SEQUENCER playback.
	Ch's	○×*	×	×	×	×	×	×	—	
Pitch Bend		○×*	×	○×*	○×*	○×*	×	○×*	×	Transmitted during SEQUENCER playback and during rhythm performance.
Control Change	0,32	○×*	○×*	○×*	○×*	○×*	○×*	○×*	×	bank select MSB, LSB modulation data entry MSB, LSB volume panpot expression sustain sostenuto soft auto play chord intro, fill in, ending fade in/out reverb DSP effect digital effect piano ambience RPN LSB, MSB all sound off reset all cotrollers
	1	○×*	×	○×*	○×*	○×*	×	○×*	×	
	6,38	○×*	×	×	×	×	×	×	×	
	7	○×*	○×*	○×*	○×*	○×*	○×*	×	×	
	10	○×*	×	○×*	○×*	○×*	×	×	×	
	11	○×*	○×*	○×*	○×*	○×*	×	×	×	
	64	○×*	×	○×*	○×*	○×*	×	×	×	
	66	○	×	×	×	×	×	×	×	
	67	○	×	×	×	×	×	×	×	
	80	×	×	○×*	×	×	×	×	×	
	82	×	×	×	×	×	○×*	×	×	
	83	×	×	×	×	×	×	×	○×*	
	91	○×*	○×*	○×*	○×*	○×*	○×*	○×*	○×*	
	93	○×*	○×*	×	×	×	×	×	×	
	94	○×*	×	○×*	○×*	○×*	×	○×*	×	
	95	○×*	○×*	×	×	×	×	×	○×*	
	100,101	○×*	×	×	×	×	×	×	×	
120	○	○	×	×	×	×	×	×		
121	○×*	○×*	×	×	×	×	×	×		
Prog Change		○×*	○×*	○×*	○×*	○×*	○×*	○×*	×	Changes depending on program change mode and prog.cng to p.mem.
	True #	—	—	—	—	—	—	—	—	
System exclusive		○								
System common	Song Pos	○×*								
	Song Sel	○×* (0-19)								
	Tune	×								
System Real Time	Clock	○								
	Commands	○×*								start/stop,continue
Aux Messages	Local ON/ OFF	×	×	×	×	×	×	×	—	
	All notes OFF	×	×	×	×	×	×	×	—	
	Active Sense	○								
	Reset	×								
Notes		○×*.....Whether or not the data for each of these items is transmitted can be set.								

Mode 1: OMNI ON, POLY
Mode 3: OMNI OFF, POLY

Mode 2: OMNI ON, MONO
Mode 4: OMNI OFF, MONO

○: Yes
×: No

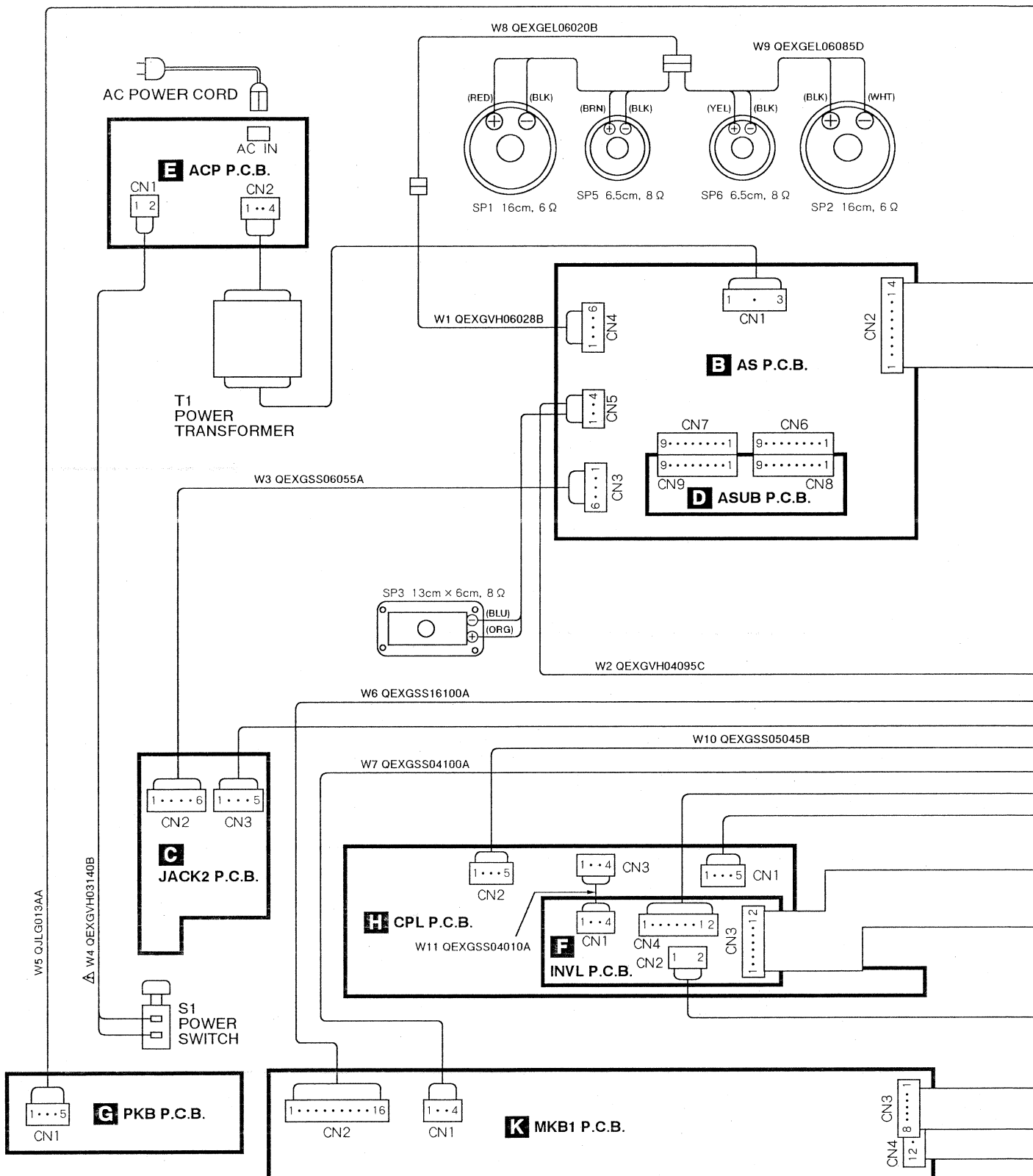
Function		RIGHT1,2,LEFT, PART4~15	PART16	ACMP1	ACMP2,3	BASS	DRUMS	CHORD	CONTROL	Remarks
Basic Channel	Default	1-16	1-16	1-16	1-16	1-16	1-16	1-16	1-16	memorized
	Changed	1-16	1-16	1-16	1-16	1-16	1-16	1-16	1-16	
Mode	Default	3	3	3	3	3	3	3	3	OMNI OFF, POLY MODE
	Messages	×	×	×	×	×	×	×	×	
	Altered	—	—	—	—	—	—	—	—	
Note Number		0-127	0-127	0-127	0-127	0-127	0-127	0-127	—	Changes depending on the position of the transpose control, octave shift, and drums type.
	True voice	0-127	0-127	0-127	0-127	0-127	0-127	0-127	—	
Velocity	Note ON	○	○	○	○	○	○	○	—	
	Note OFF	×	×	×	×	×	×	×	—	
After Touch	Key's	×	×	×	×	×	×	×	—	
	Ch's	○×*	×	×	×	×	×	×	—	
Pitch Bend		○×*	×	○×*	○×*	○×*	×	○×*	×	
Control Change	0,32	○×*	○×*	○×*	○×*	○×*	○×*	○×*	×	bank select MSB, LSB modulation data entry MSB, LSB volume panpot expression sustain sostenuto soft auto play chord intro, fill in, ending fade in/out reverb DSP effect digital effect piano ambience RPN LSB, MSB all sound off reset all controllers
	1	○×*	×	○×*	○×*	○×*	×	○×*	×	
	6,38	○×*	×	×	×	×	×	×	×	
	7	○×*	○×*	○×*	○×*	○×*	○×*	○×*	×	
	10	○×*	×	○×*	○×*	○×*	×	×	×	
	11	○×*	○×*	○×*	○×*	○×*	○×*	×	×	
	64	○×*	×	○×*	○×*	○×*	×	×	×	
	66	○	×	×	×	×	×	×	×	
	67	○	×	×	×	×	×	×	×	
	80	×	×	○×*	×	×	×	×	×	
	82	×	×	×	×	×	○×*	×	×	
	83	×	×	×	×	×	×	×	○×*	
	91	○×*	○×*	○×*	○×*	○×*	○×*	○×*	○×*	
	93	○×*	○×*	×	×	×	×	×	×	
	94	○×*	×	○×*	○×*	○×*	×	○×*	×	
	95	○×*	○×*	×	×	×	×	×	○×*	
	100,101	○×*	×	×	×	×	×	×	×	
	120	○	○	○	○	○	○	○	×	
	121	○×*	○×*	○×*	○×*	○×*	○×*	○×*	×	
Prog Change		○×*	○×*	○×*	○×*	○×*	○×*	○×*	×	Changes depending on program change mode and prog.cng to p.mem.
	True #	0-127	0-127	0-127	0-127	0-127	0-127	0-127	—	
System exclusive		○								
System common	Song Pos	○×*								
	Song Sel	○×* (0-19)								
	Tune	×								
System Real Time	Clock	○								
	Commands	○×*								start/stop, continue
Aux Messages	Local ON/OFF	×	×	×	×	×	×	×	—	
	All notes OFF	○	○	○	○	○	○	○	—	
	Active Sense	○								
	Reset	×								
Notes		○×*.....Whether or not the data for each of these items is received can be set.								

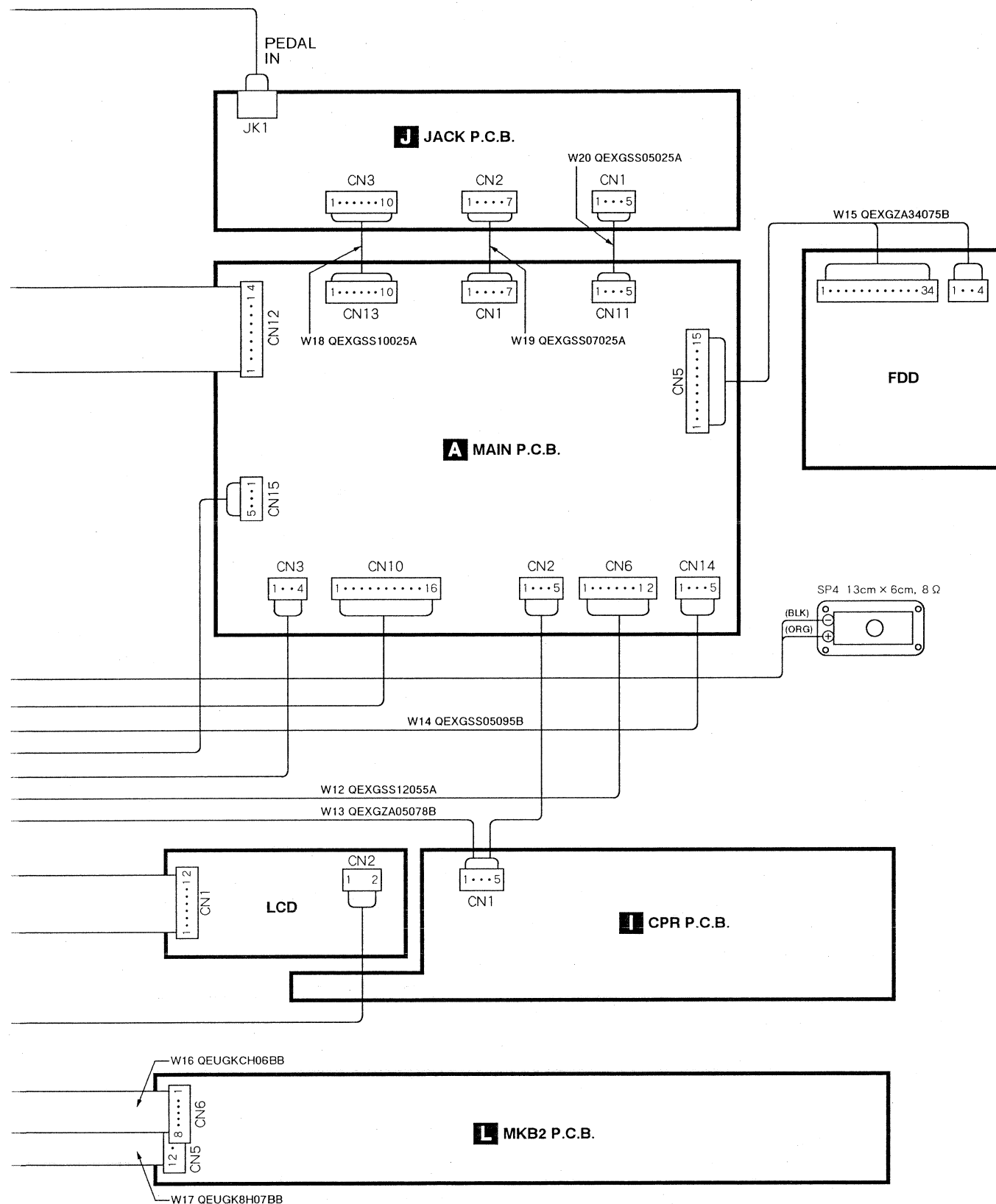
Mode 1: OMNI ON, POLY
Mode 3: OMNI OFF, POLY

Mode 2: OMNI ON, MONO
Mode 4: OMNI OFF, MONO

○: Yes
×: No

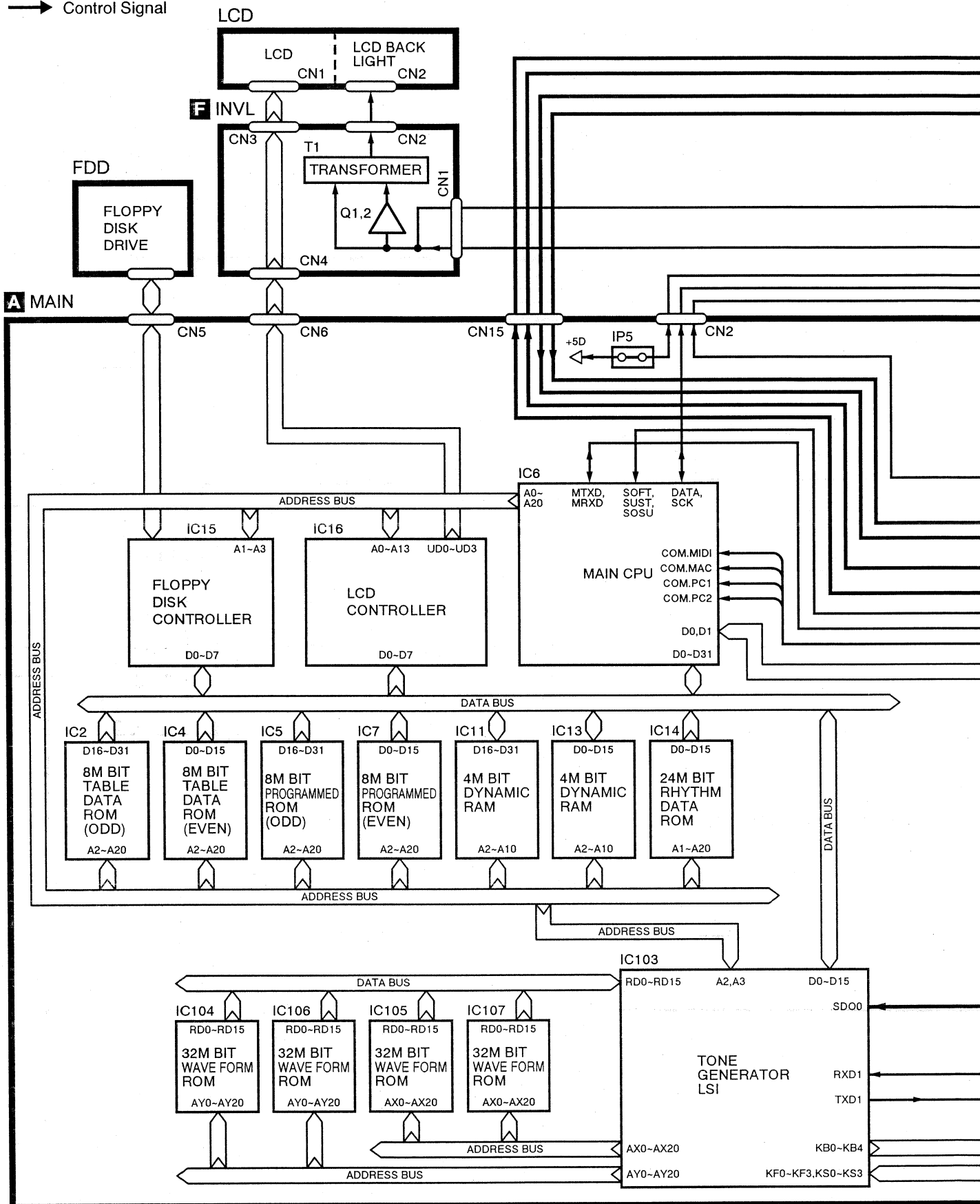
■ WIRING CONNECTION Diagram



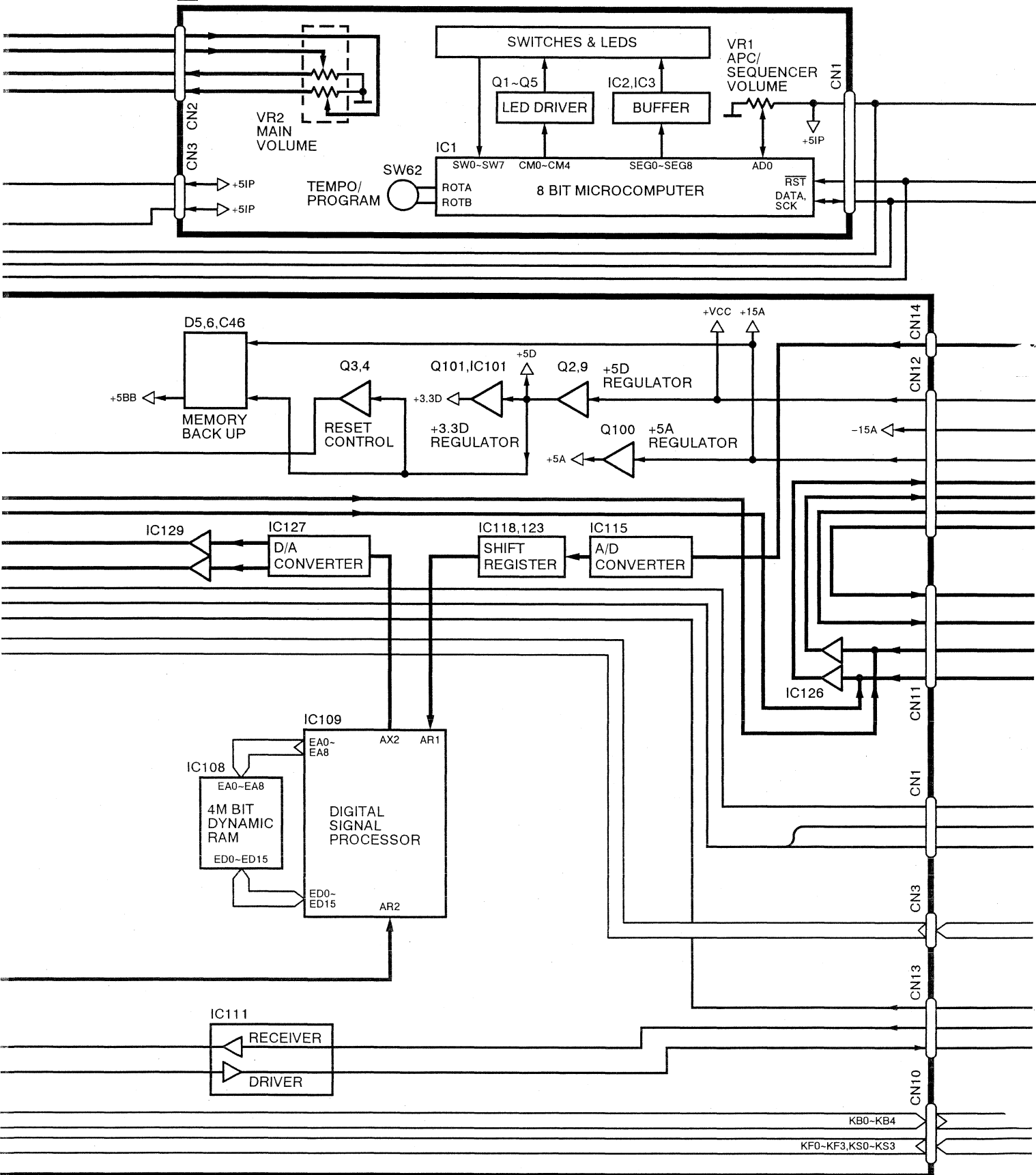


■ BLOCK Diagram

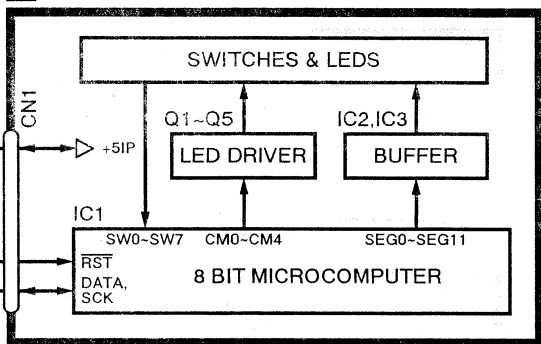
-  Tone Signal
 Control Signal



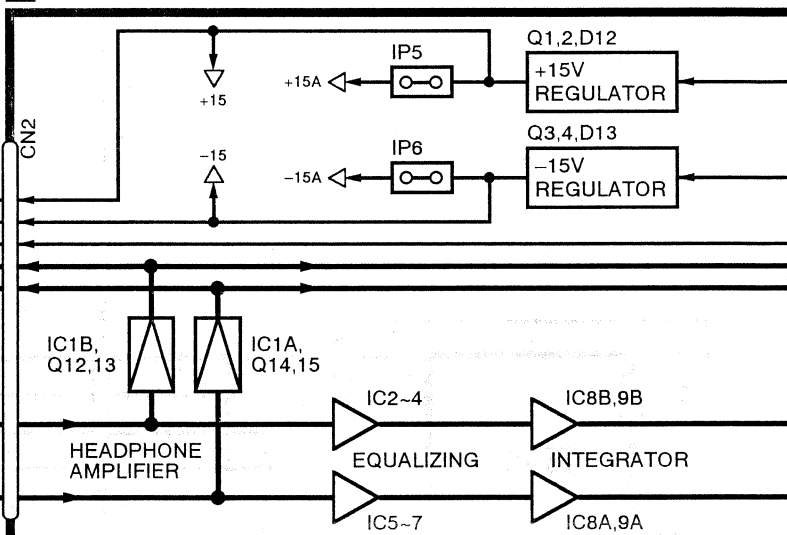
H CPL



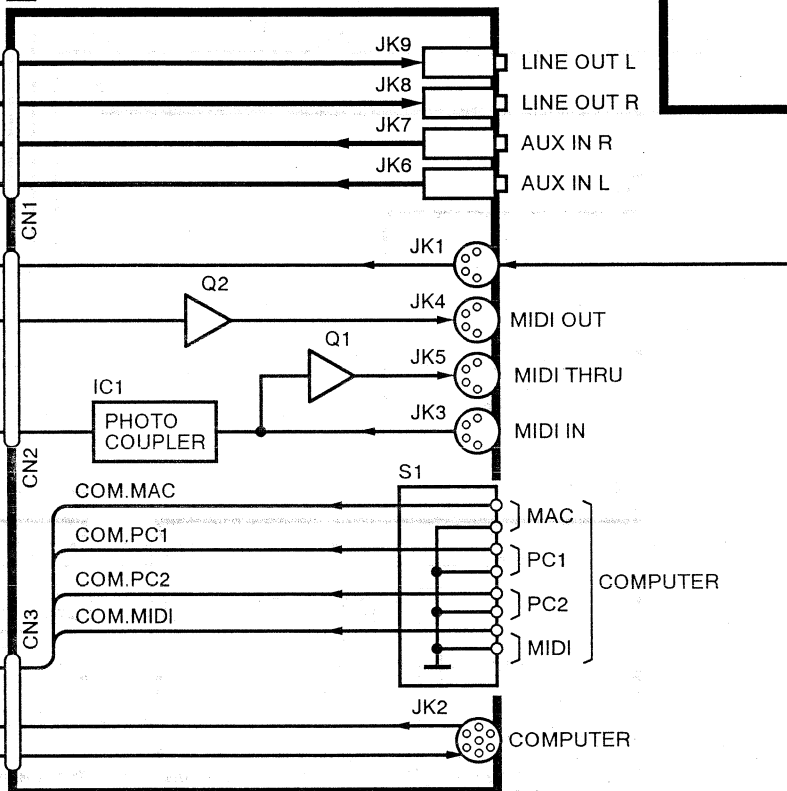
I CPR

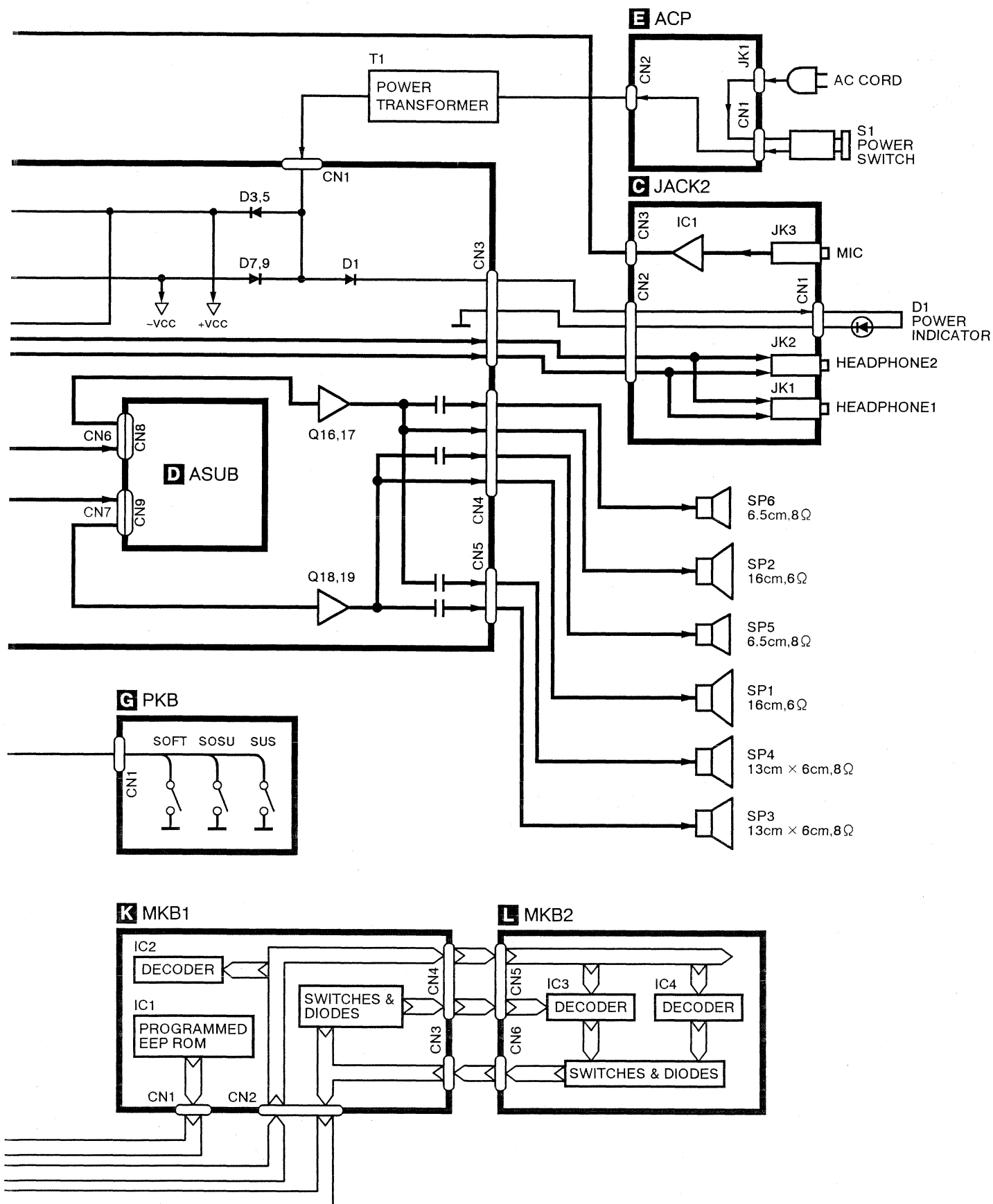


B AS



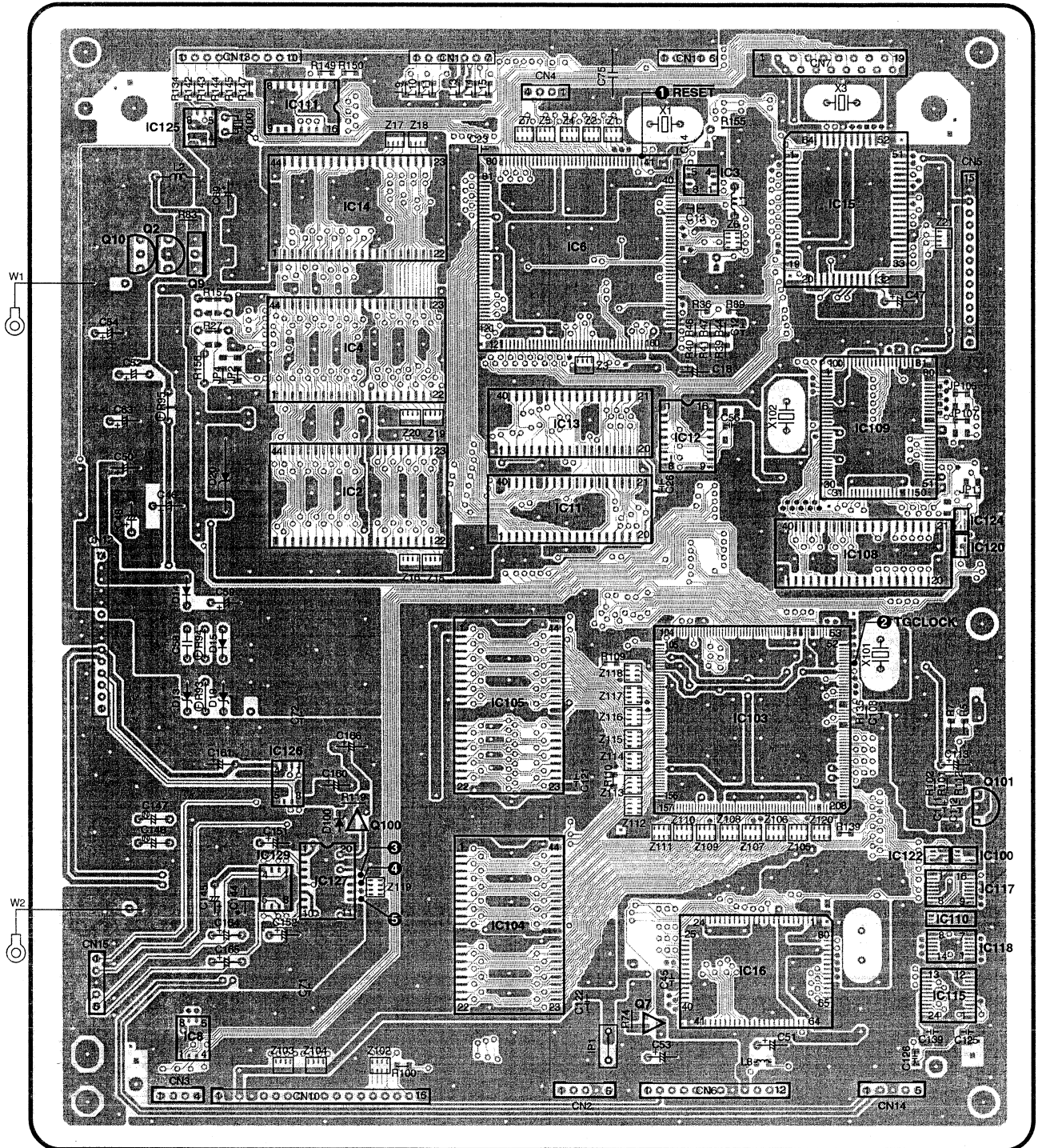
J JACK





Printed Circuit Board and Schematic Diagram

A MAIN P.C.B. (SIDE : A)



A

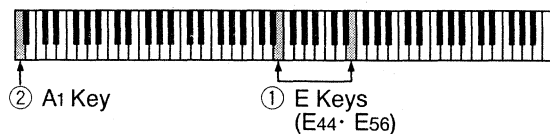


■ Measuring Condition of MAIN P.C.B.

Check Point ③~⑤

Set to the self-diagnostic mode followings.

- While pressing two E keys (①) simultaneously, turn on the power switch.
- SOUND SYNTH
- Main Volume MAX
- Keyboard A₁ (②)

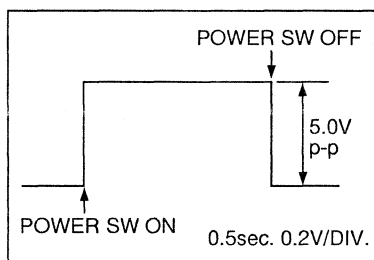


Check Point ①

Set the initial setting mode (Refer to page I-5)

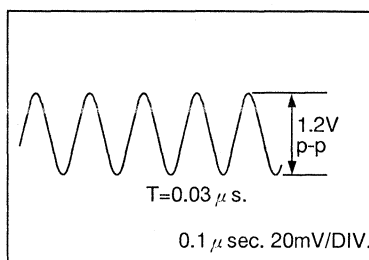
- SOUND SYNTH
- Main Volume MAX

① RESET

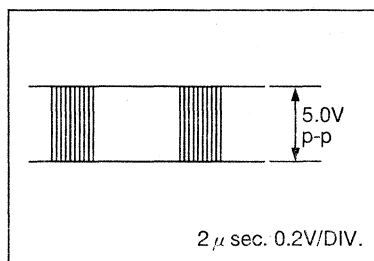


- Power SW ON → OFF

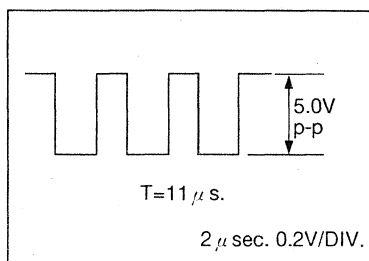
② TG CLOCK



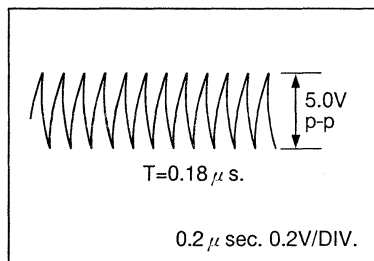
③



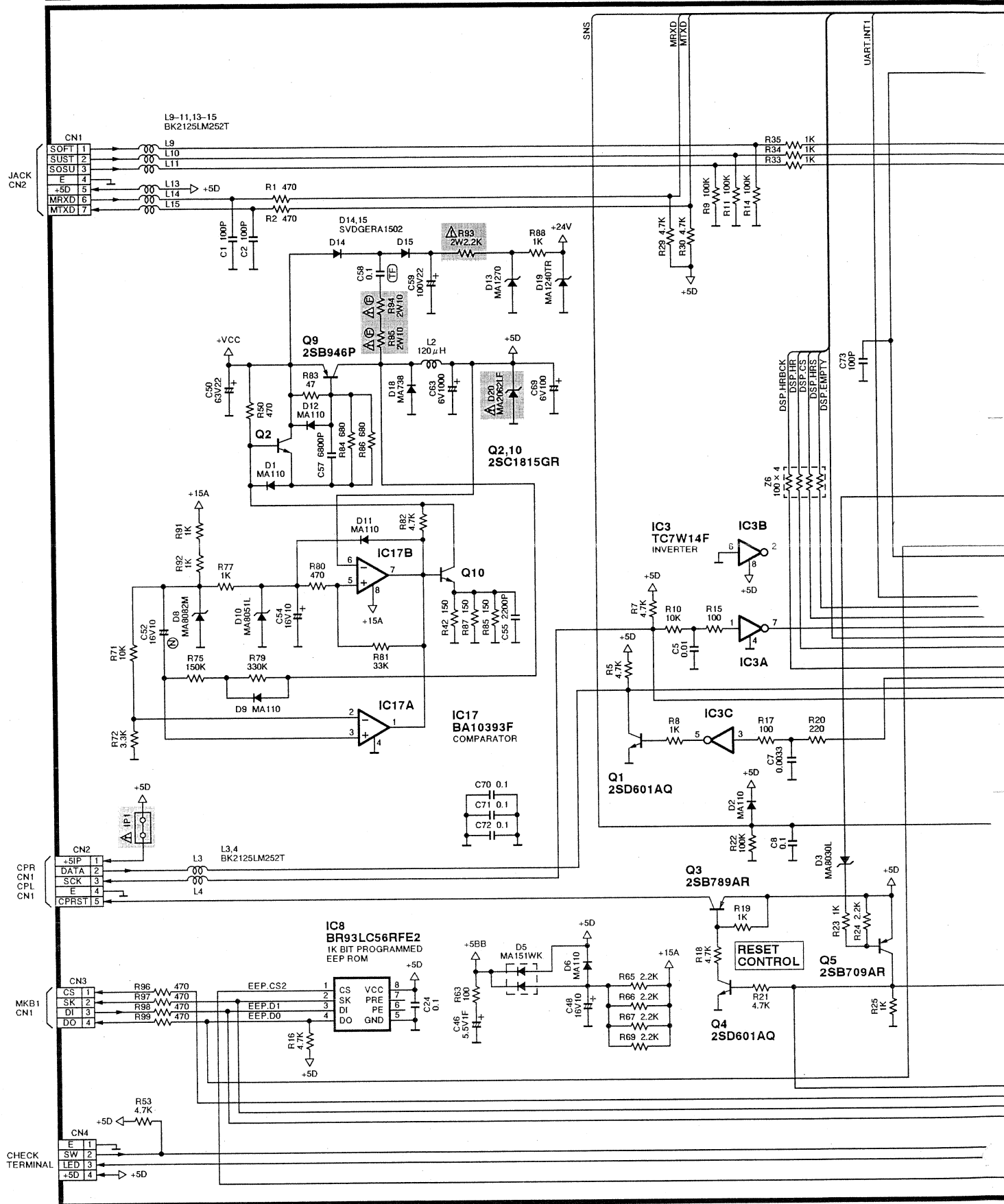
④

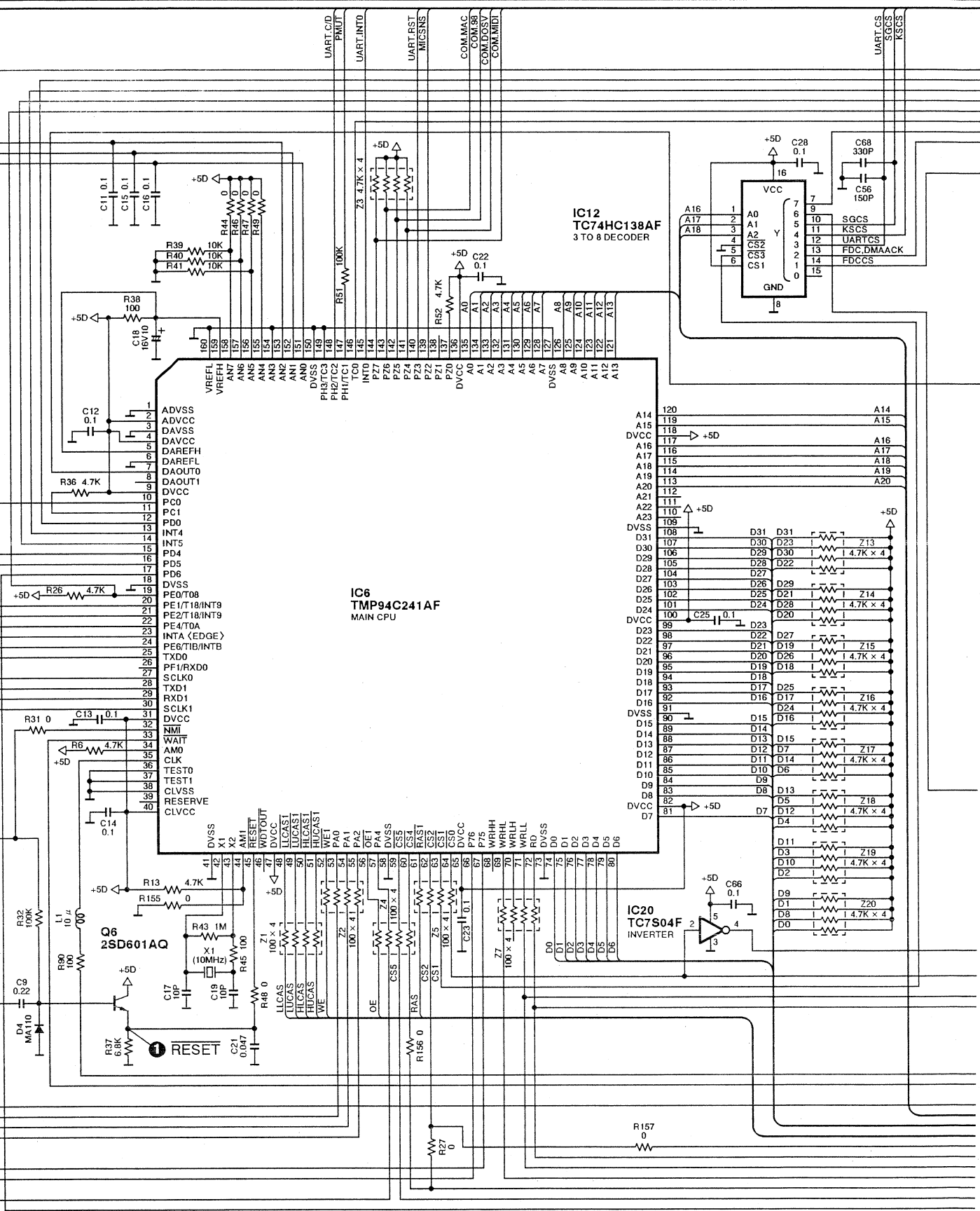


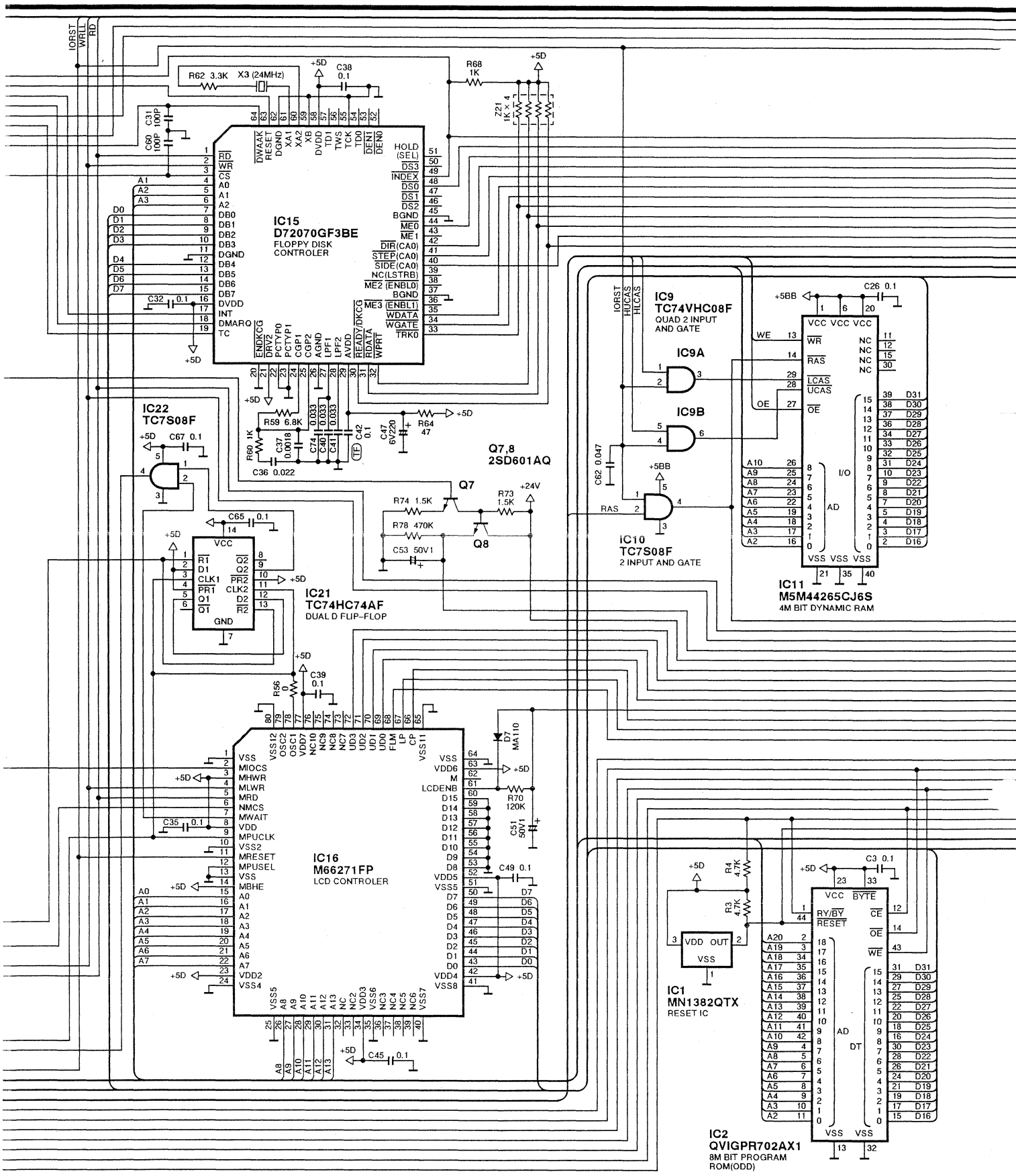
⑤

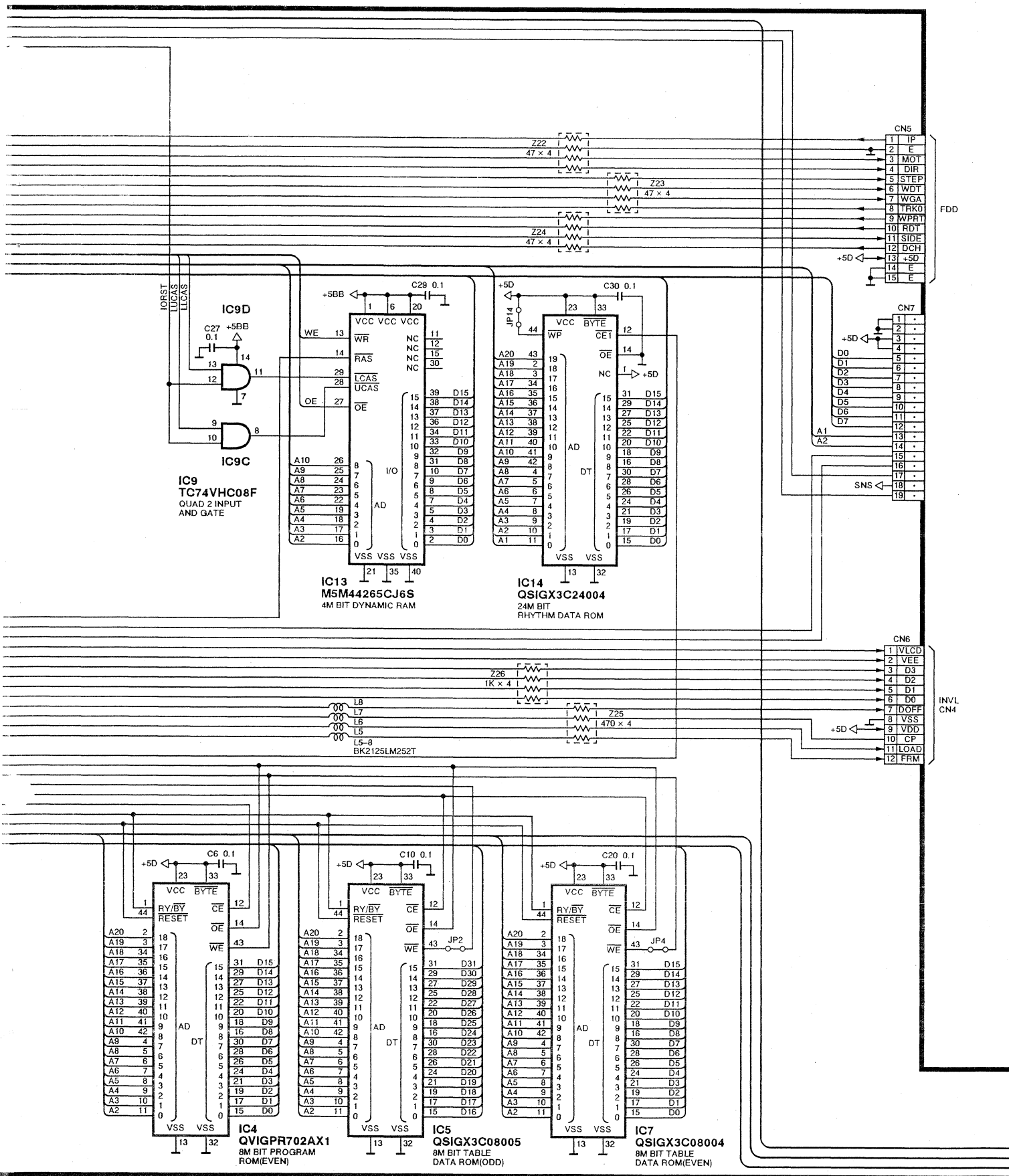


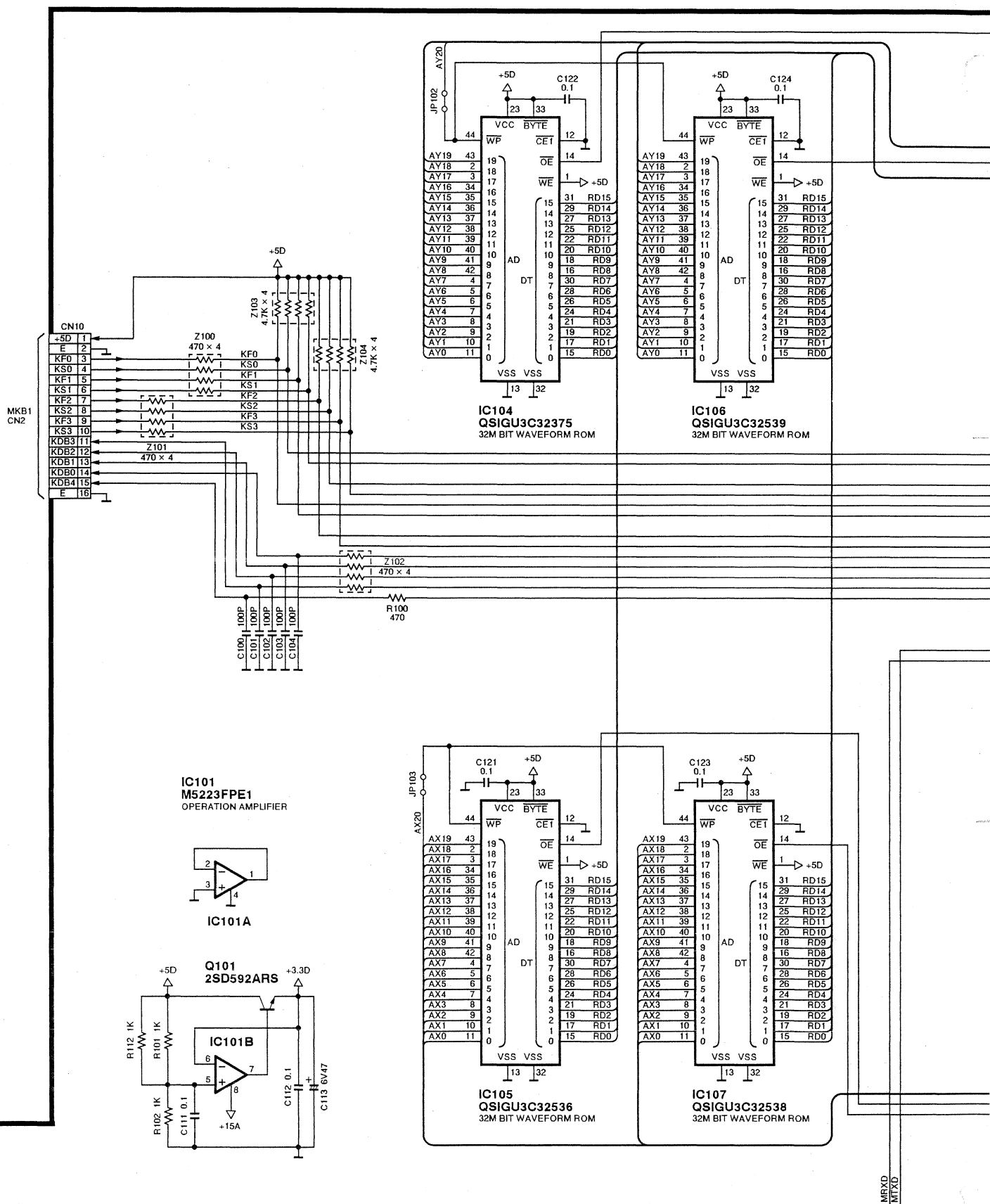
A MAIN CIRCUIT

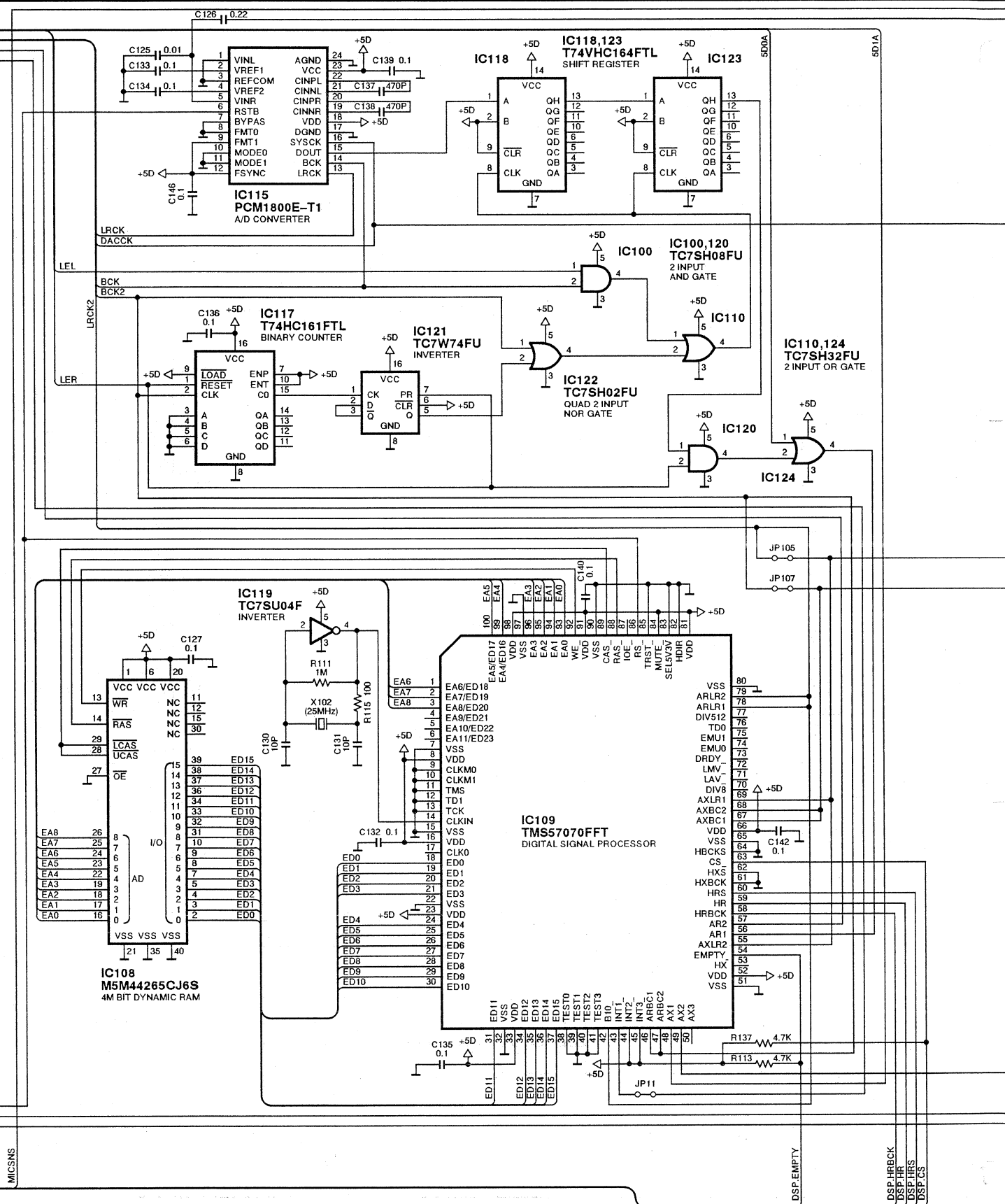


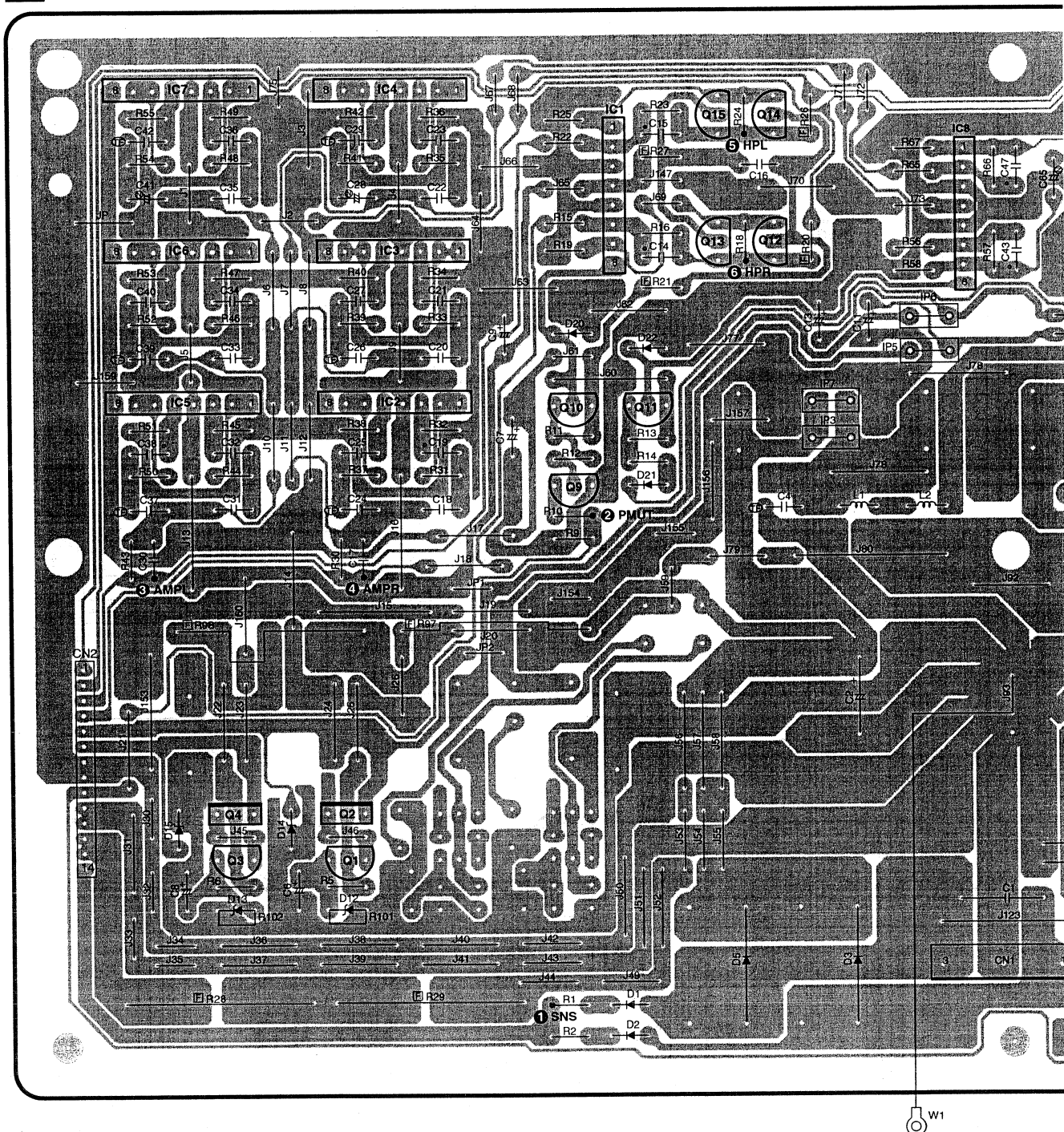










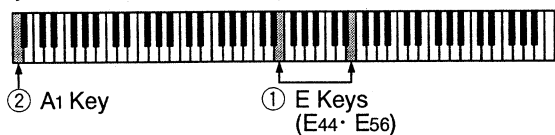


■ Measuring Condition of AS P.C.B.

Check Point ③ ~ ⑧

Set to the self-diagnostic mode followings.

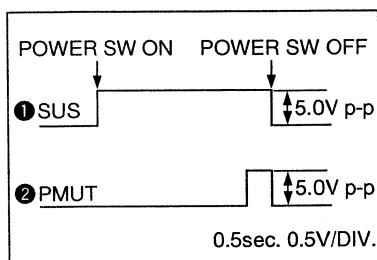
- While pressing two E keys (①) simultaneously, turn on the power switch.
- SOUND SYNTH
- Main Volume MAX
- Keyboard A1 (②)



Check Point ①, ②

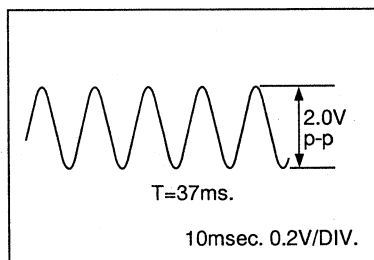
Set the initial setting mode (Refer to page I-5)

① SNS, ② PMUT

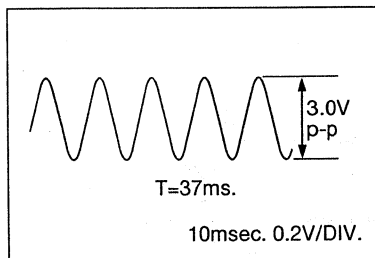


• Power SW ON → OFF

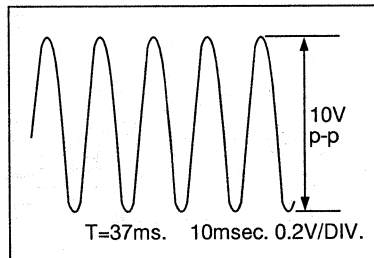
③ AMPL, ④ AMPR



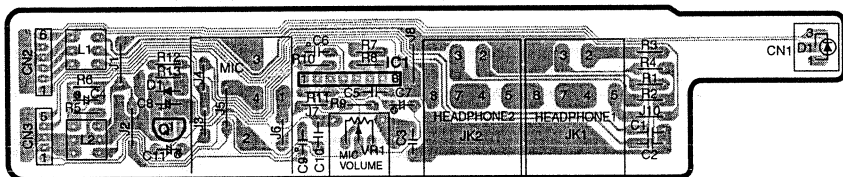
⑤ HPL, ⑥ HPR



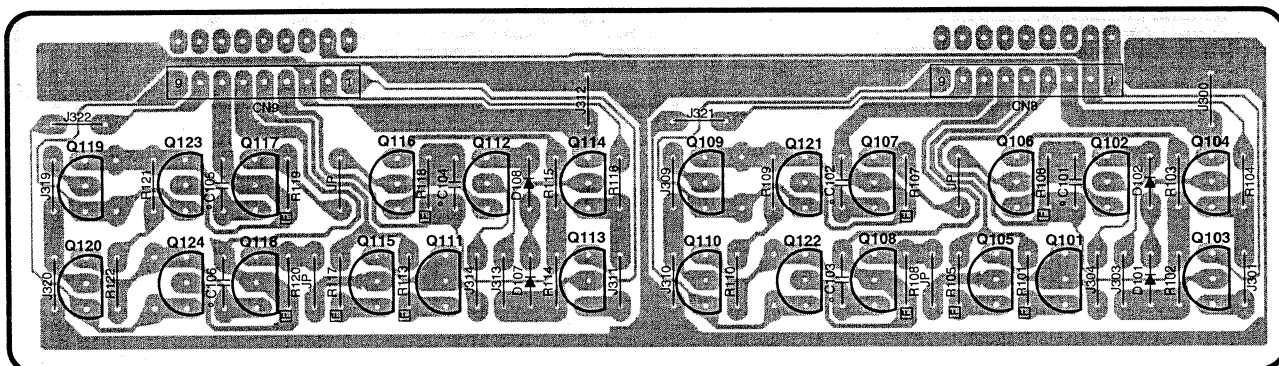
⑦ SPL, ⑧ SPR



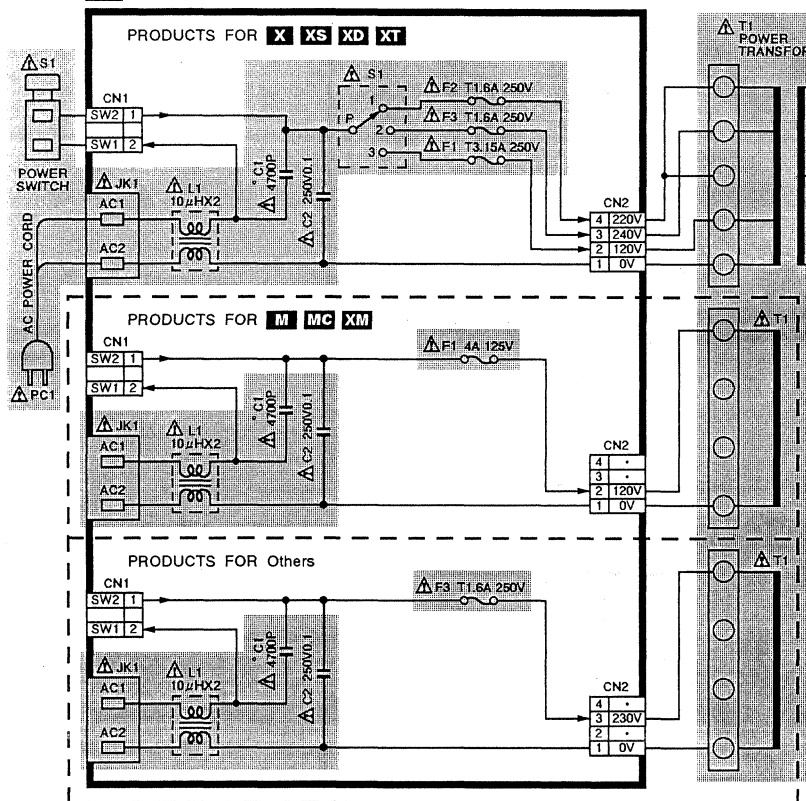
C JACK2 P.C.B.



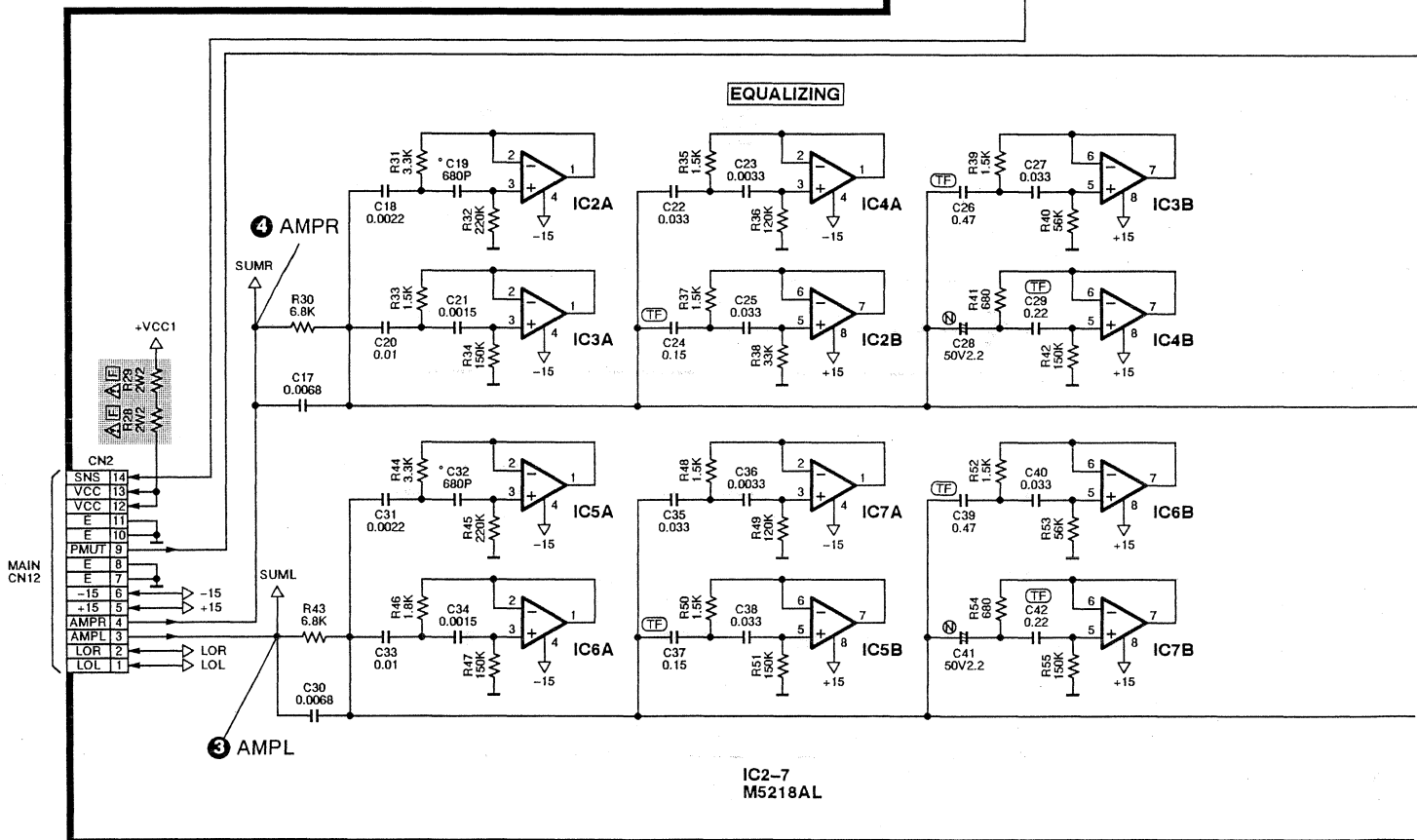
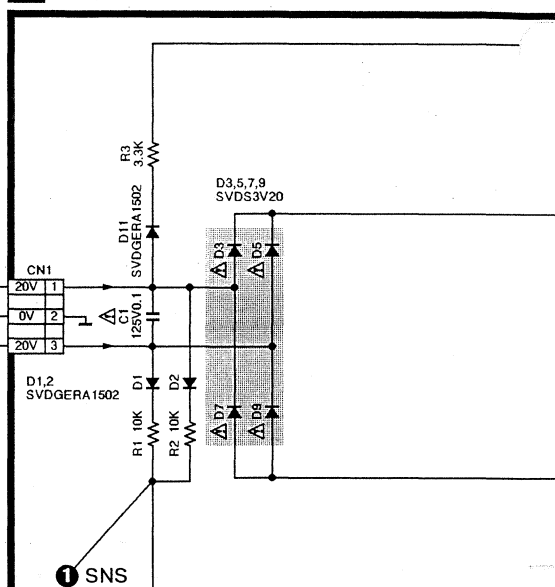
D ASUB P.C.B.

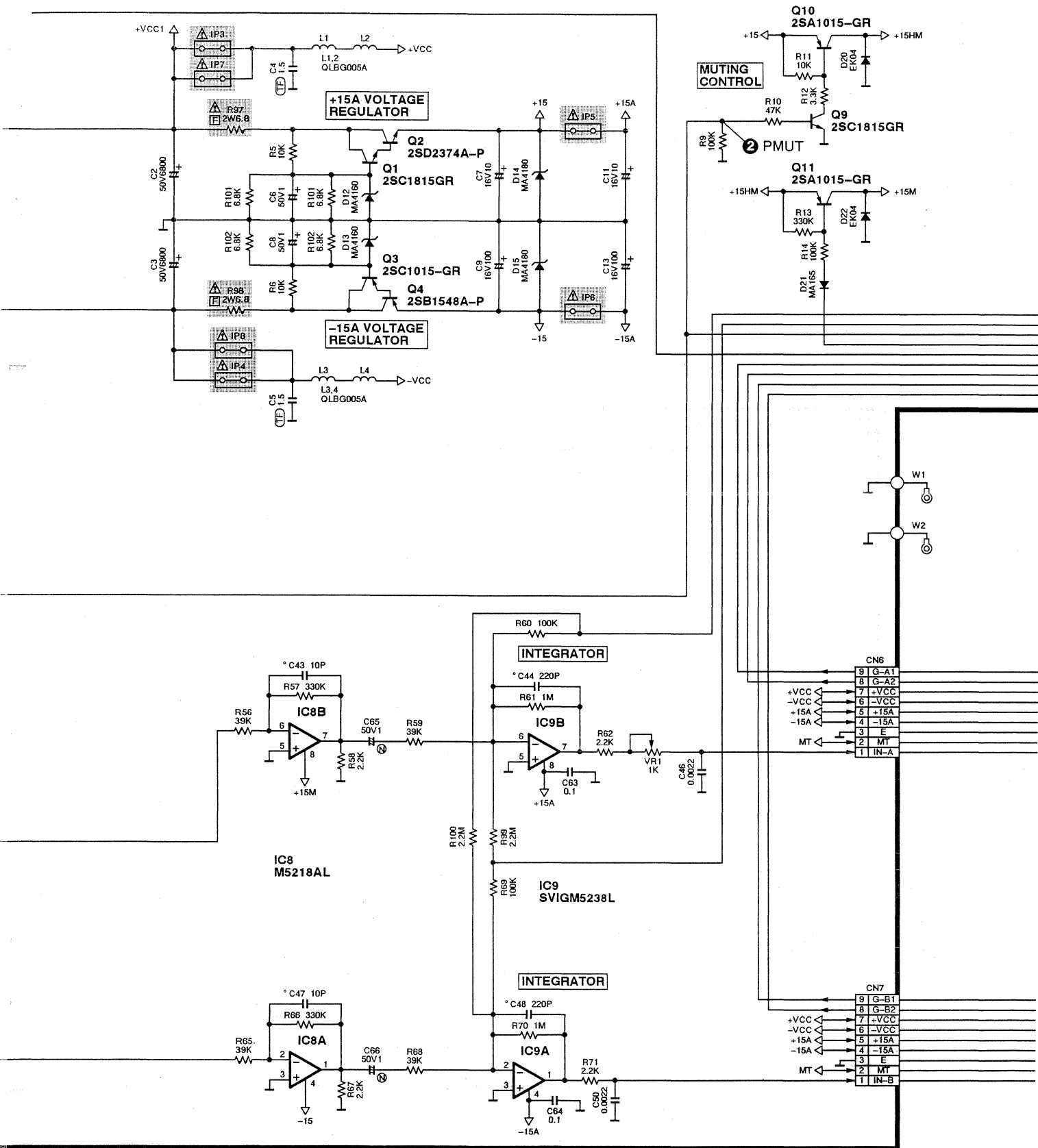


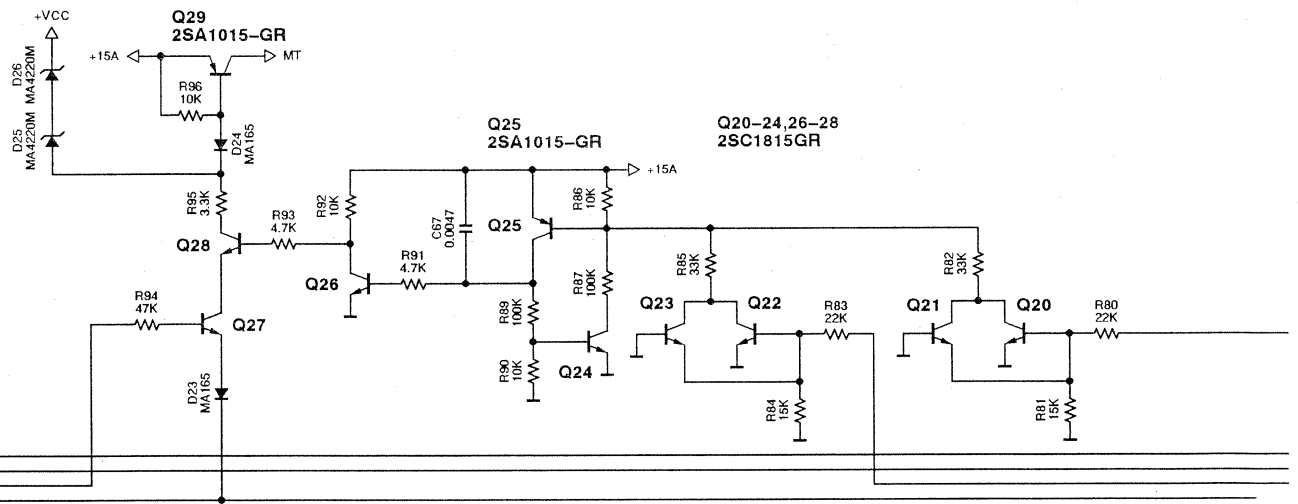
E ACP CIRCUIT



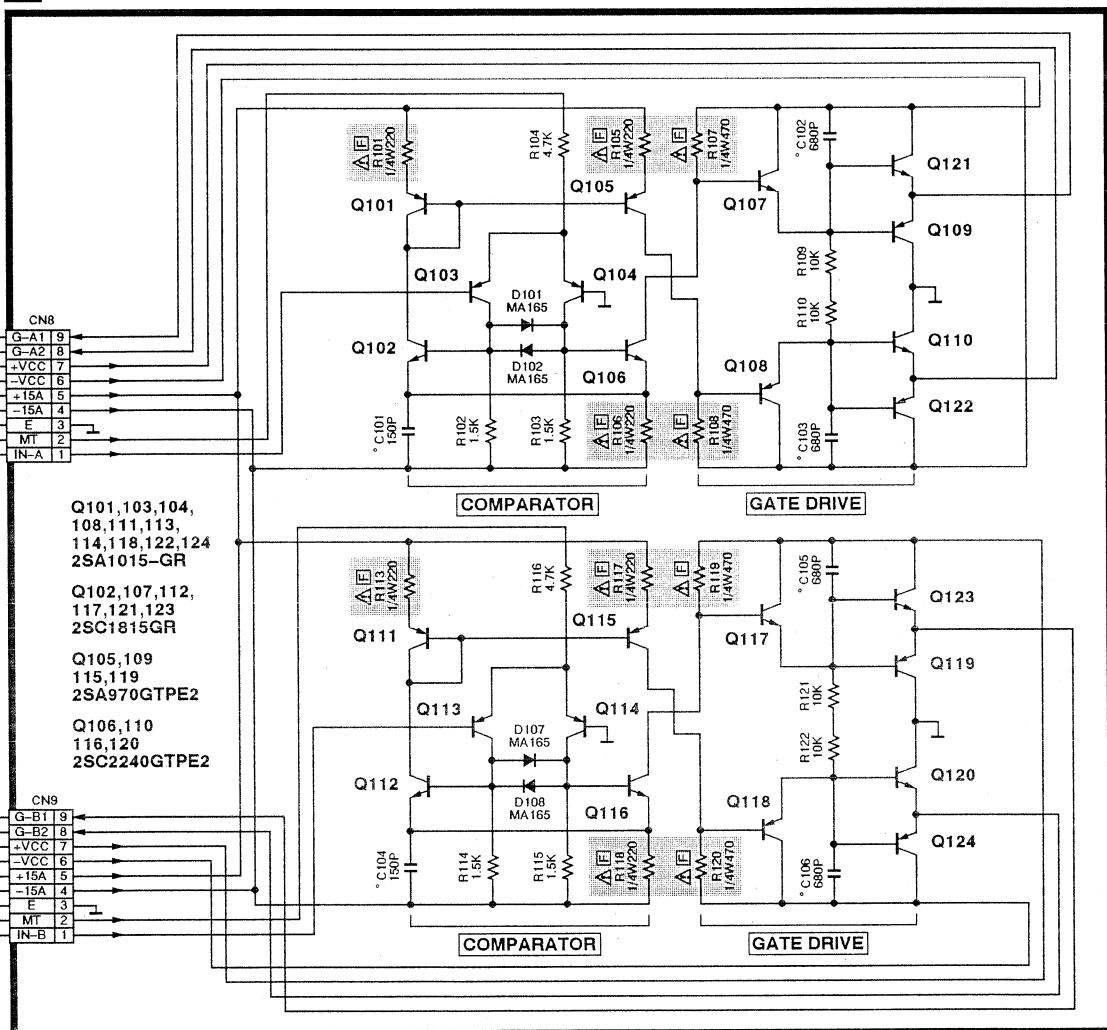
B AS CIRCUIT



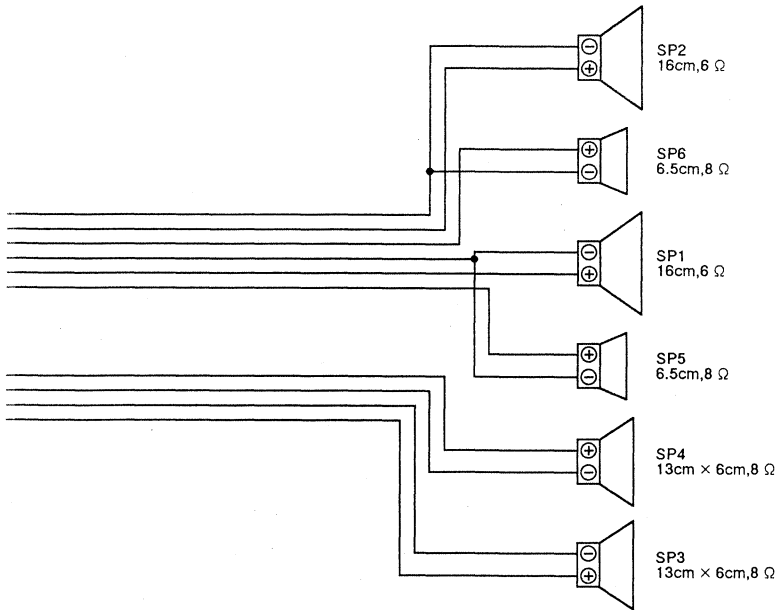




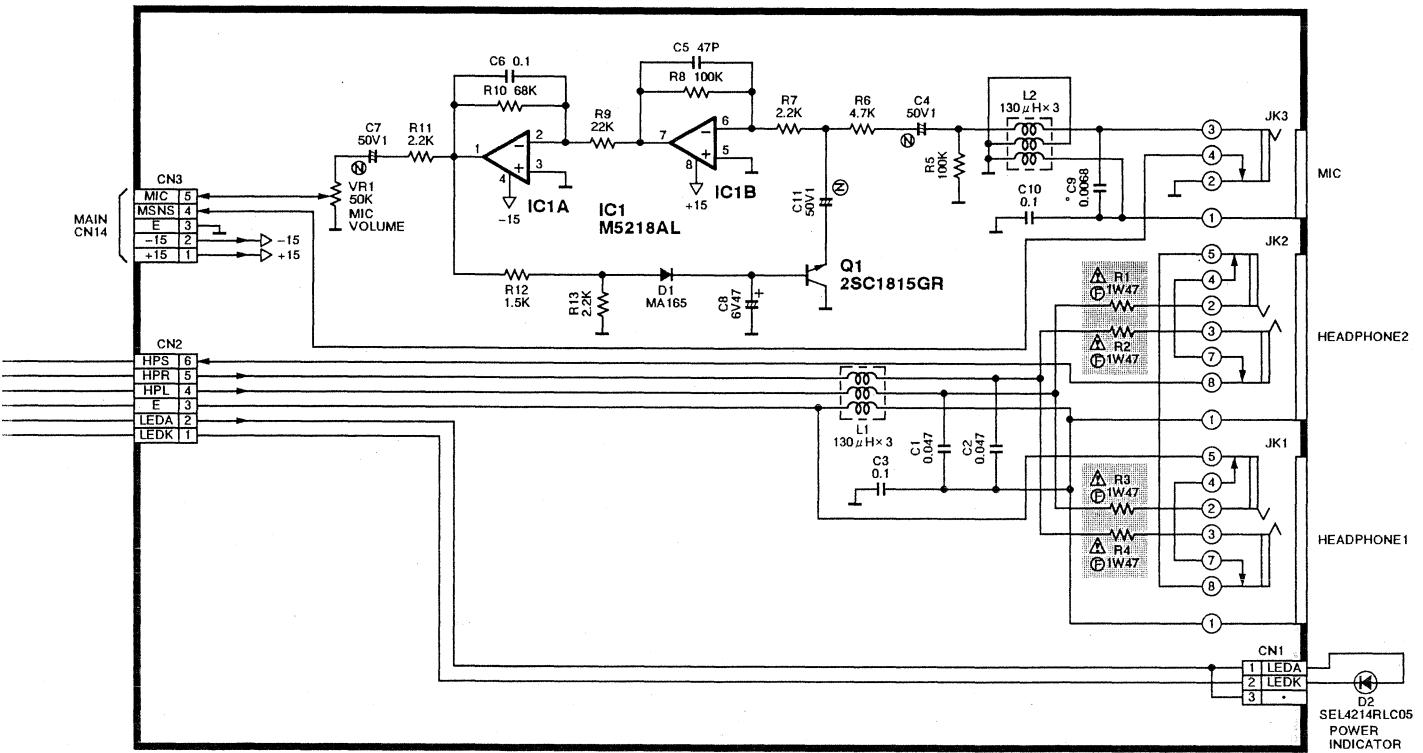
D ASUB CIRCUIT





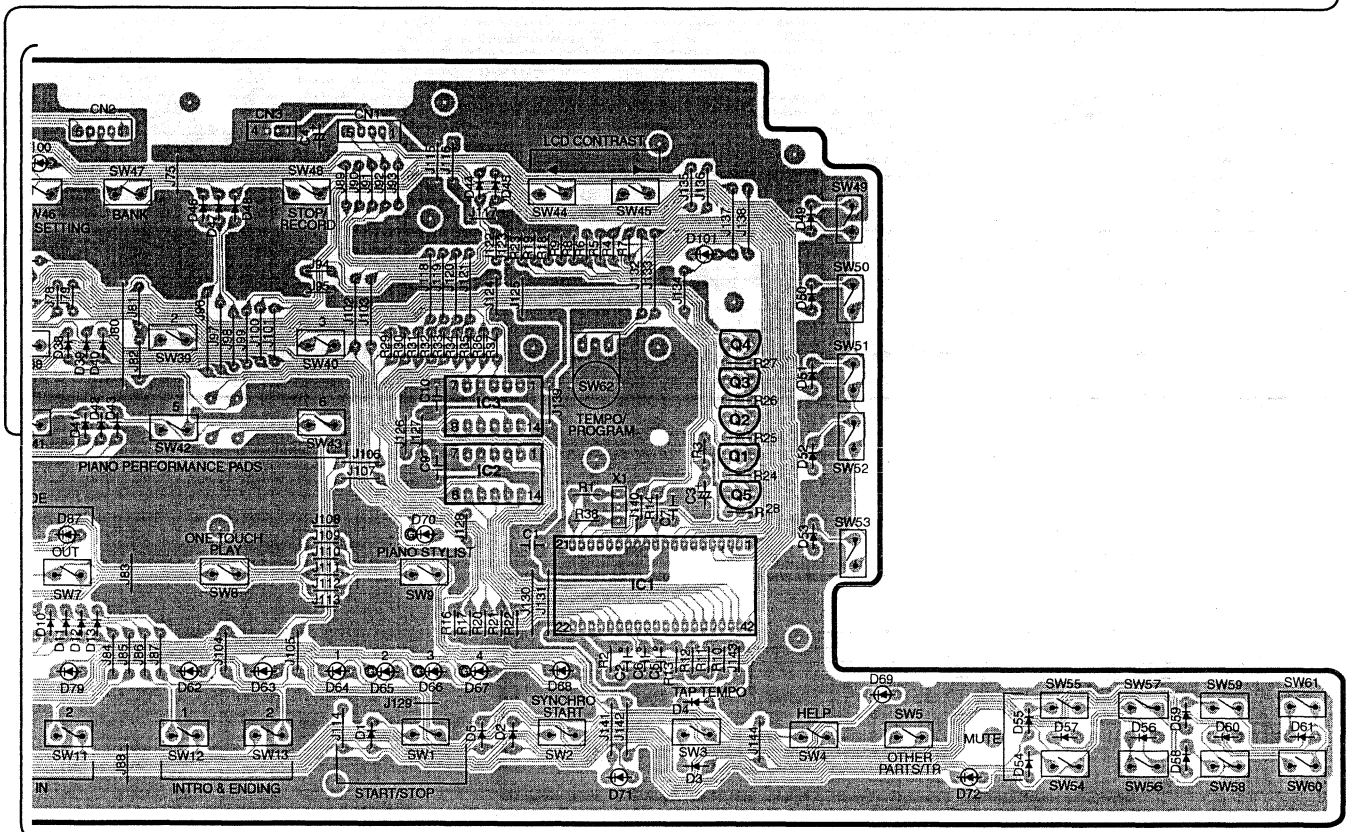
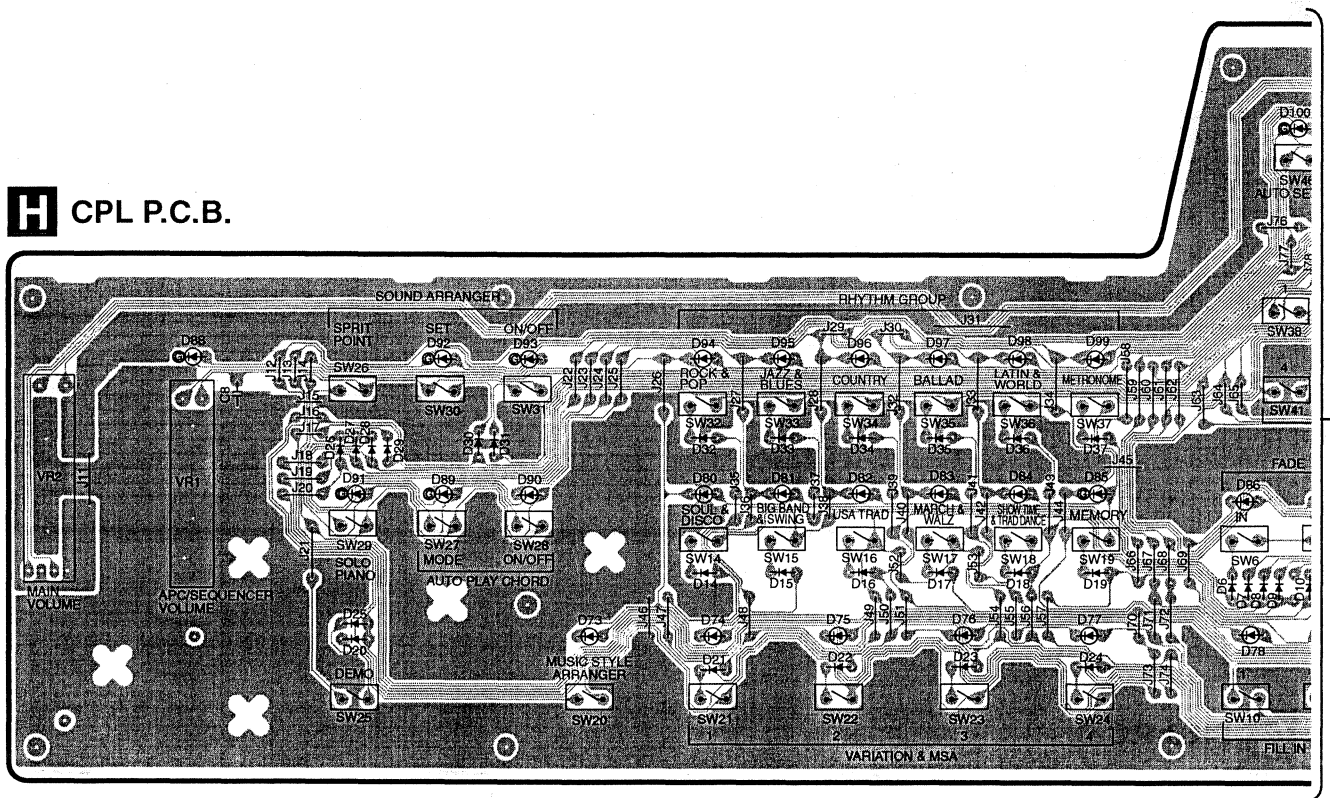


C JACK2 CIRCUIT

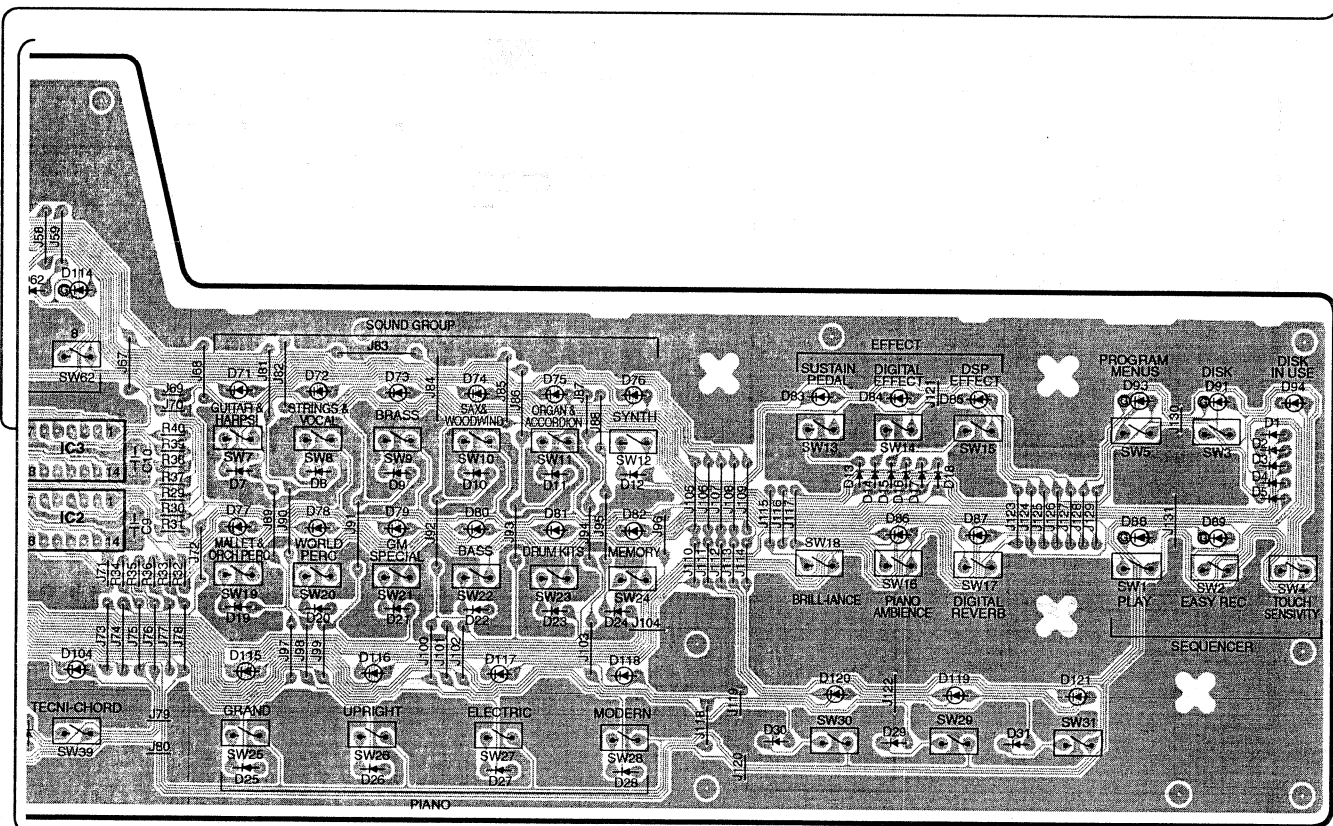
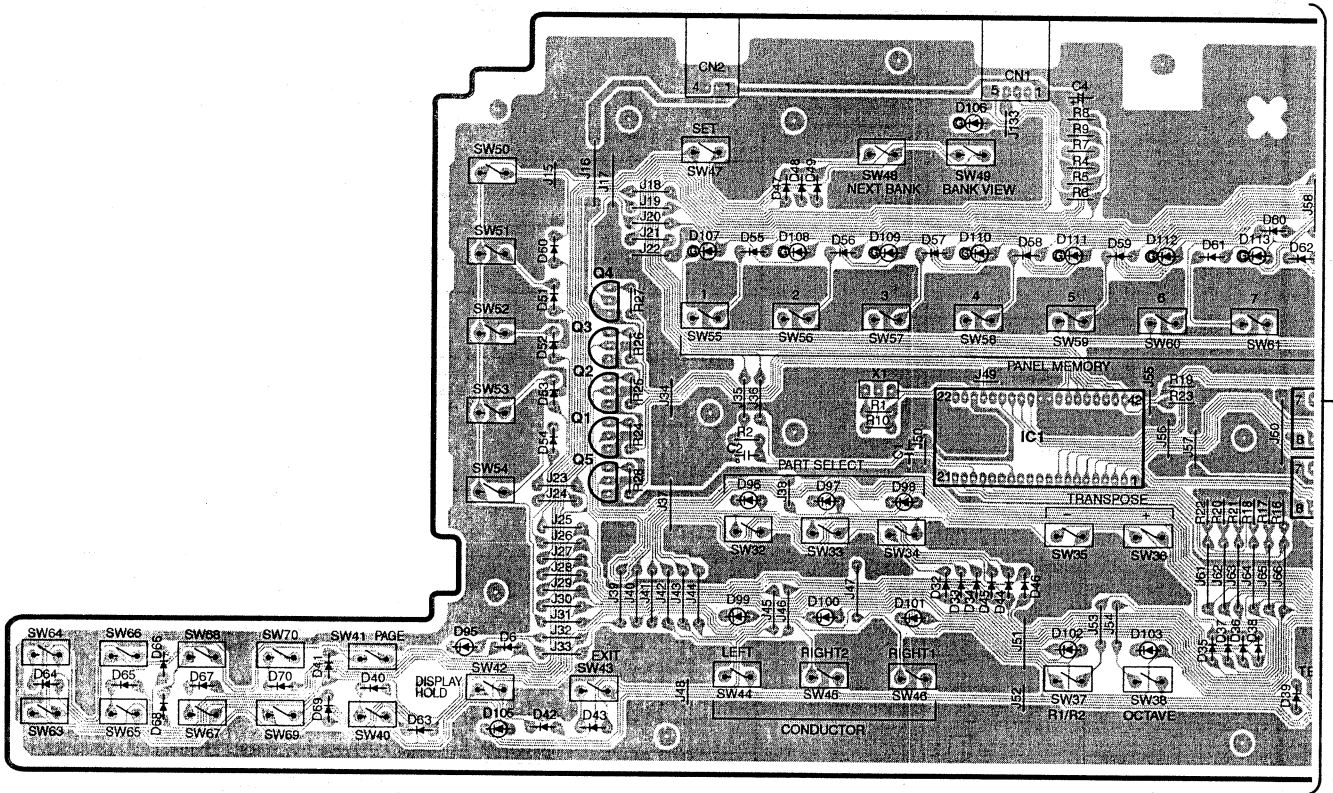


The circuit diagram shows the internal wiring of the LCD driver module. It features a CPL CN3 connector at the top left with pins +5IP (1), E (2), and E (3). A 6V 1000 capacitor (C1) is connected to the +5IP pin. Two 5.6K resistors (R1 and R2) are connected to the E pins. The circuit includes two 2SD592ARS transistors (Q1 and Q2) and a 0.047 capacitor (C2). The T1 module is connected to the transistors and the capacitor C3. The LCD CN2 connector is connected to the output of the circuit. The LCD CN6 connector is also shown with pins FRM, LOAD, CP, VDD, VSS, DOFF, D0, D1, D2, D3, VEE, and VLCD.

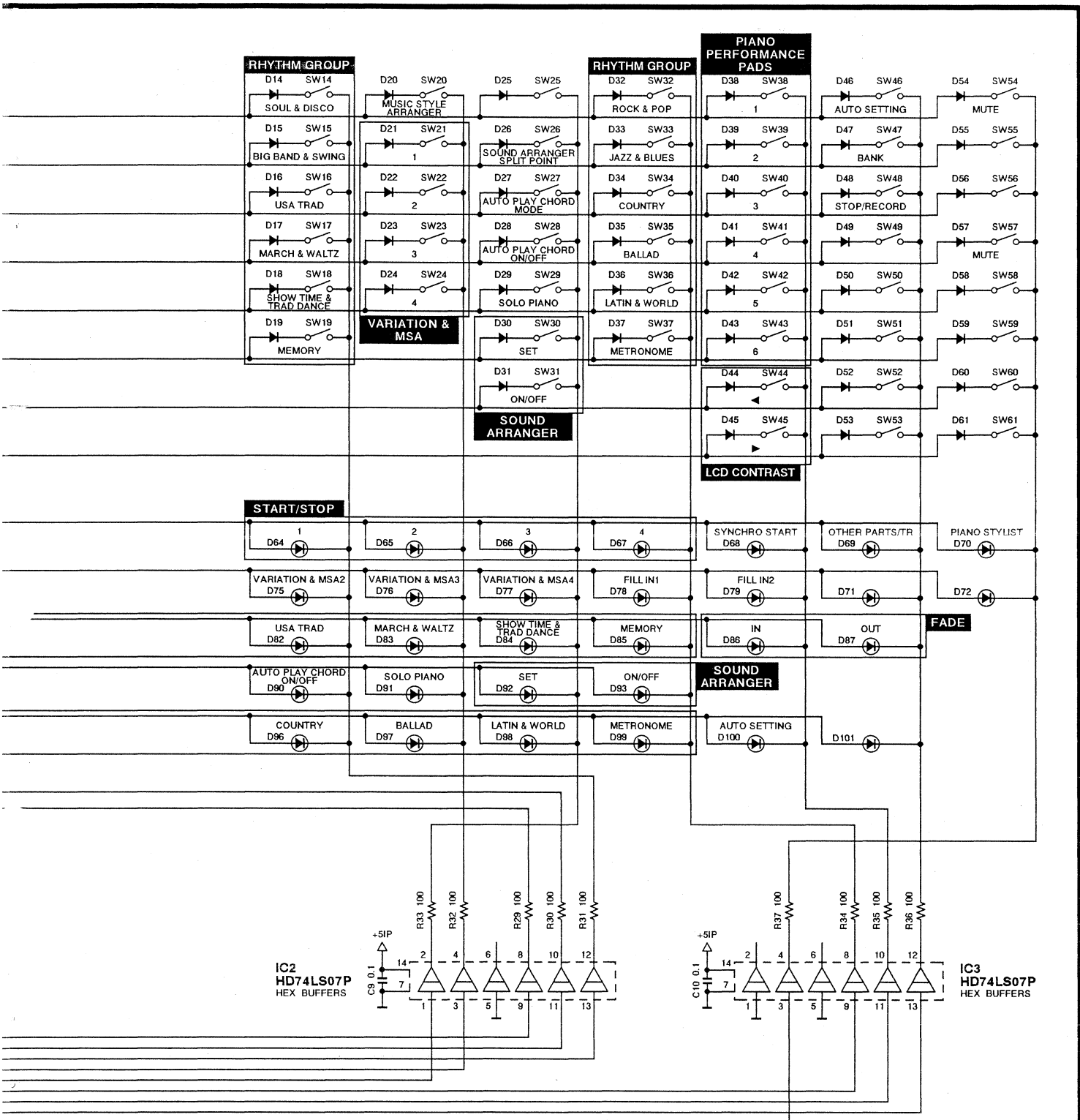
H CPL P.C.B.



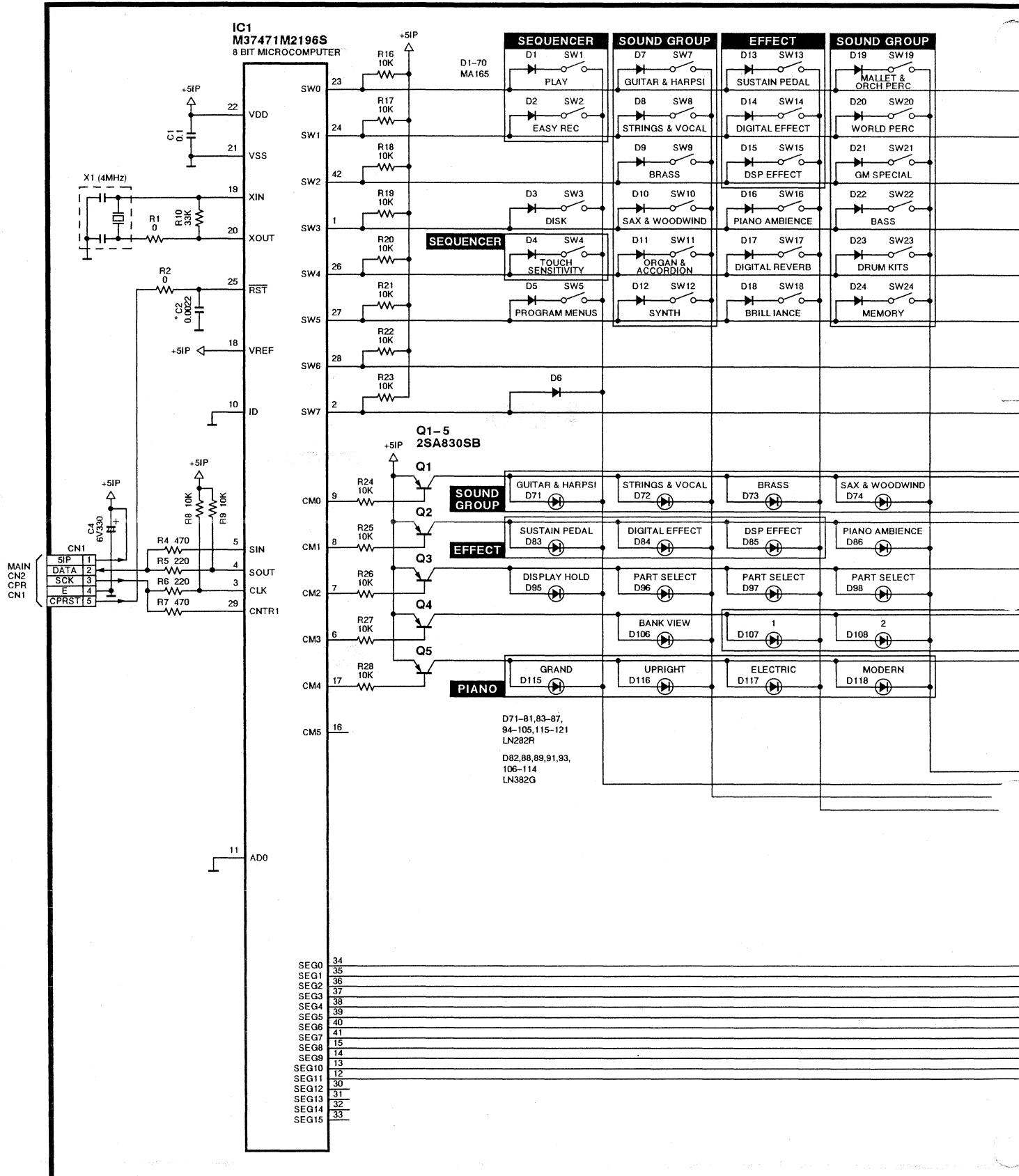
1

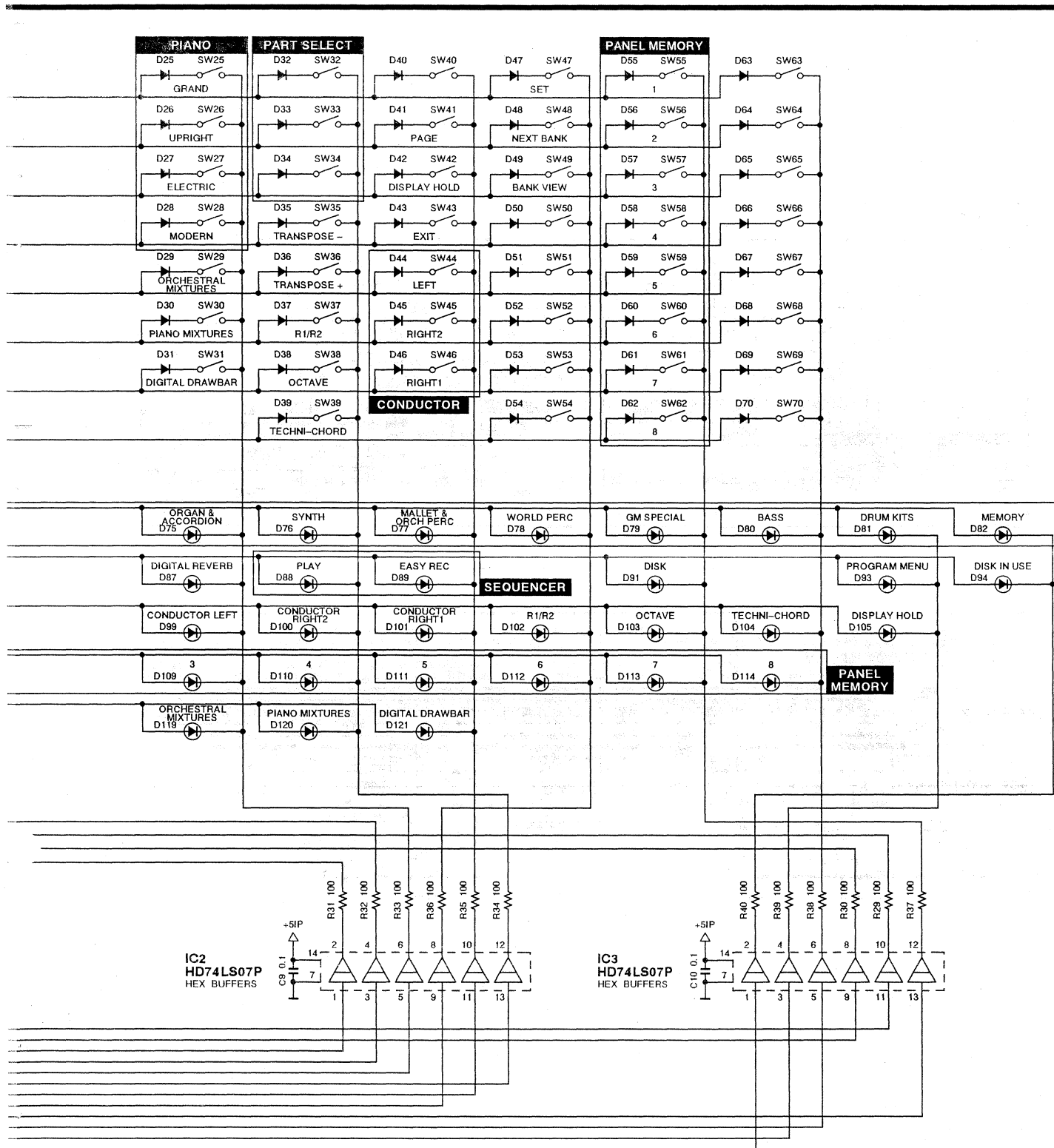




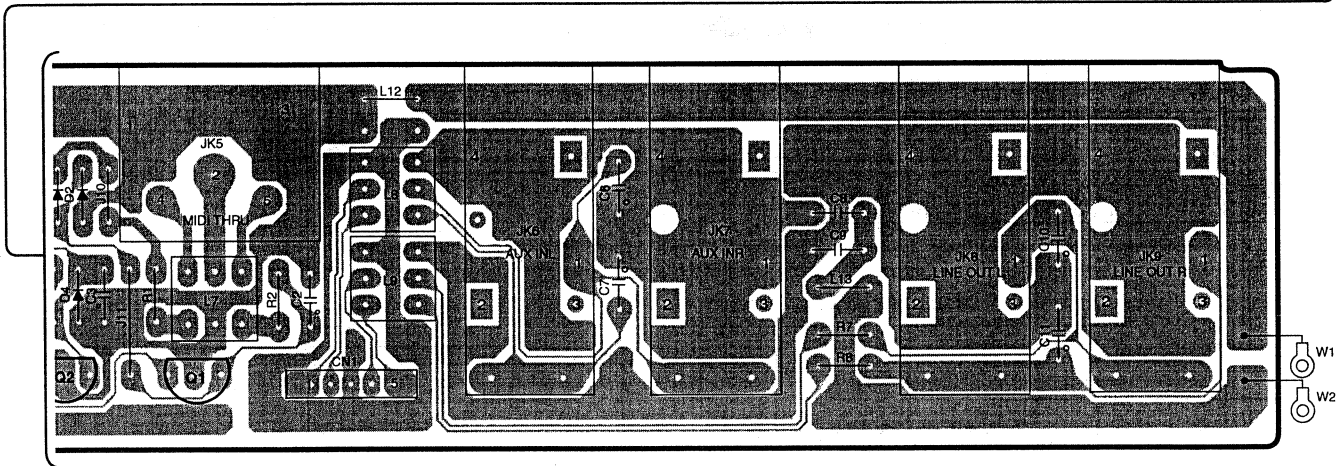
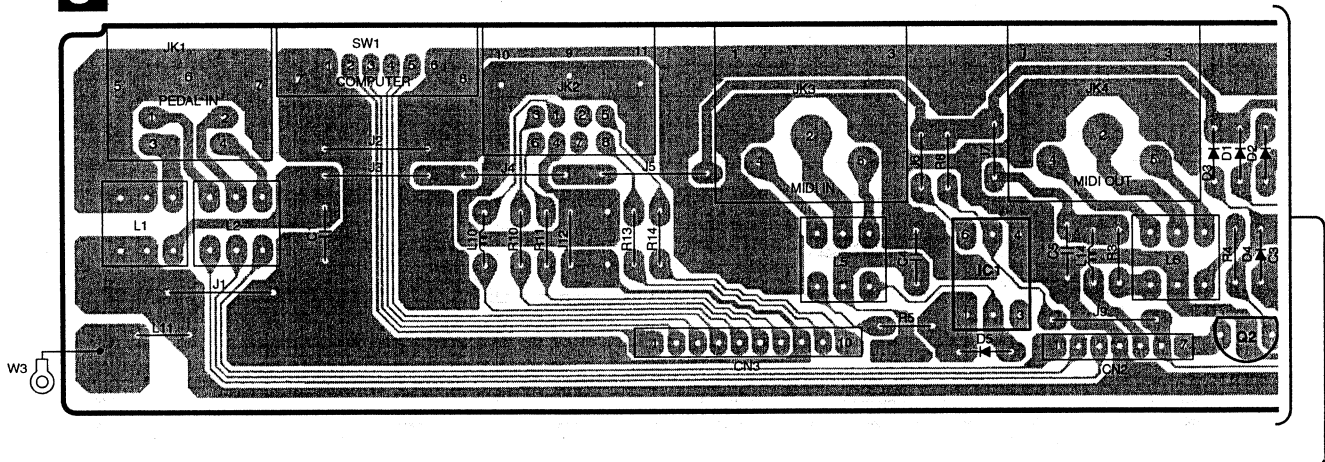


I CPR CIRCUIT

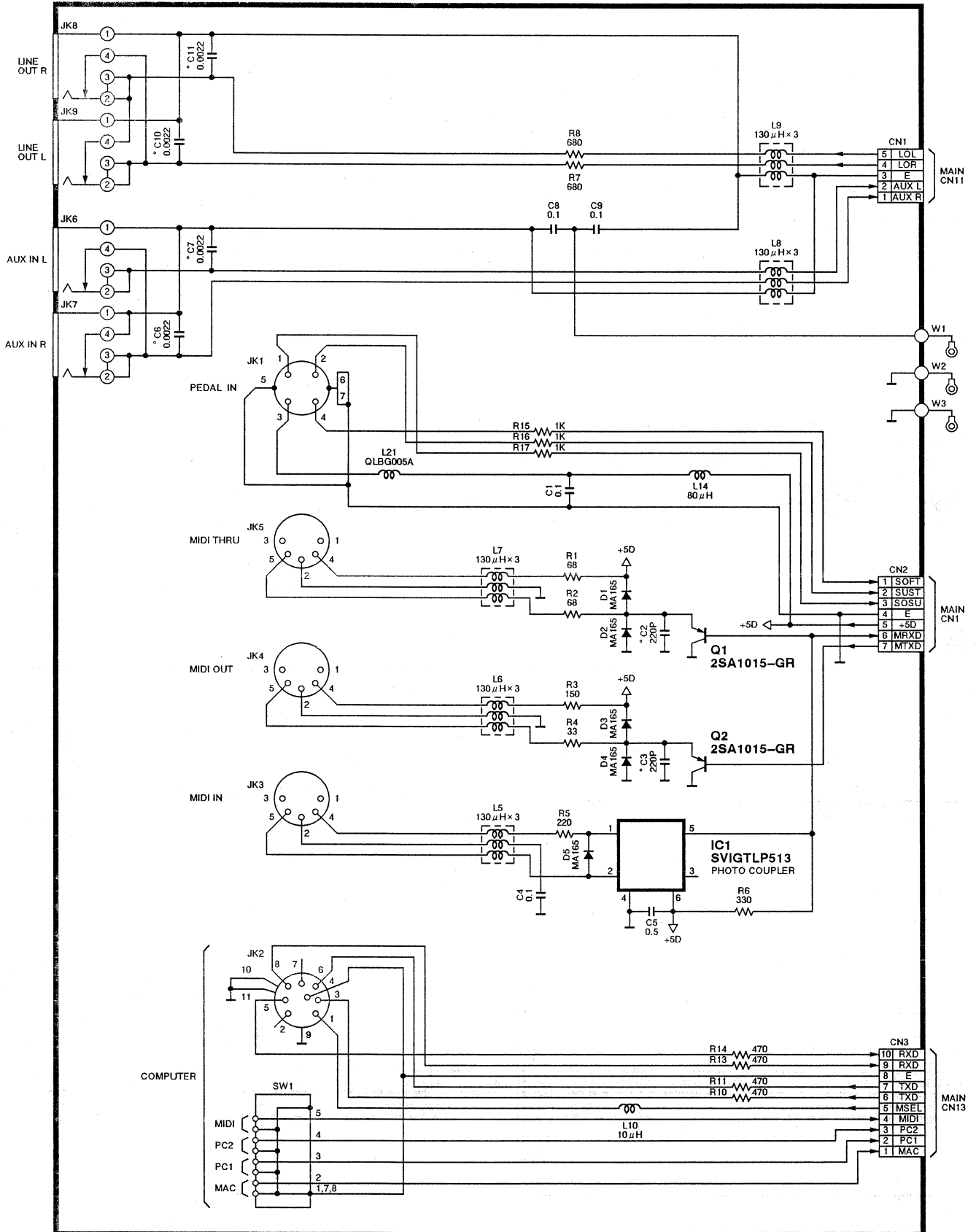




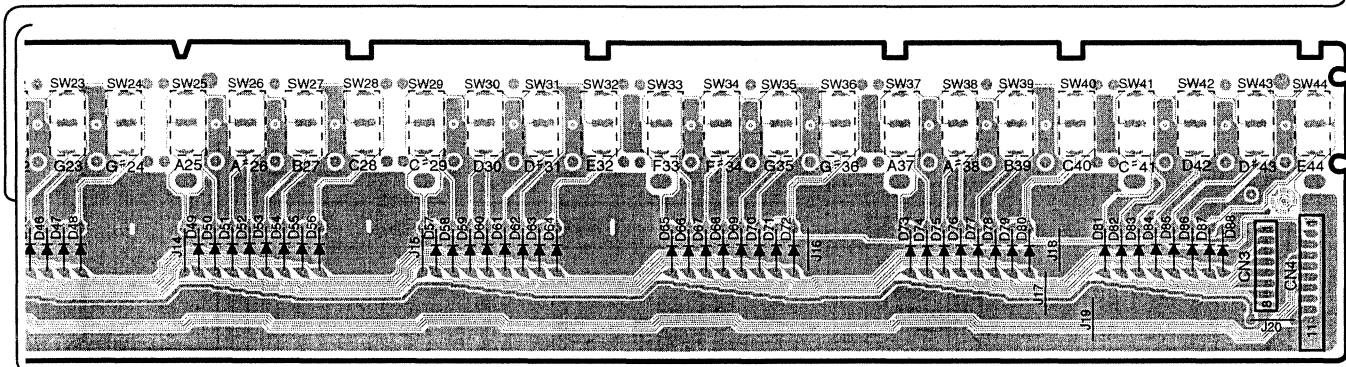
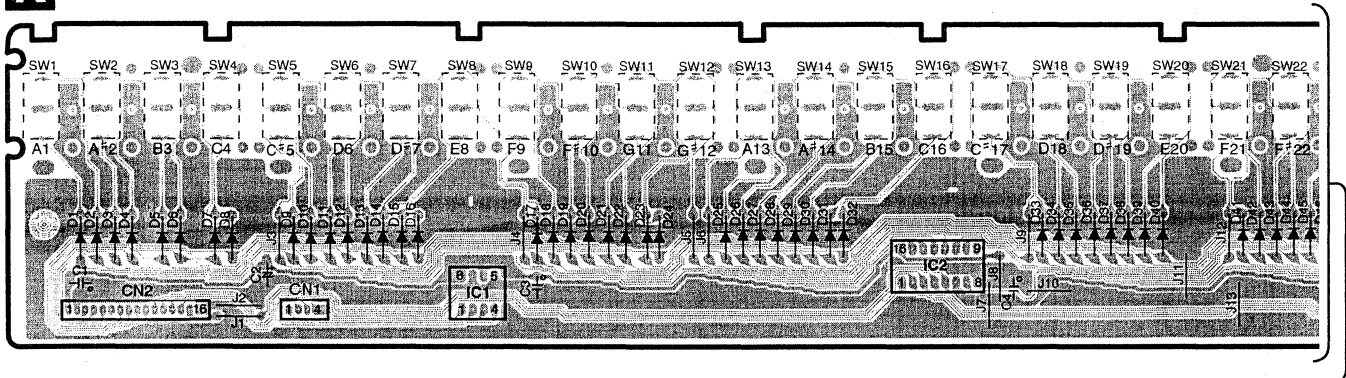
J JACK P.C.B.



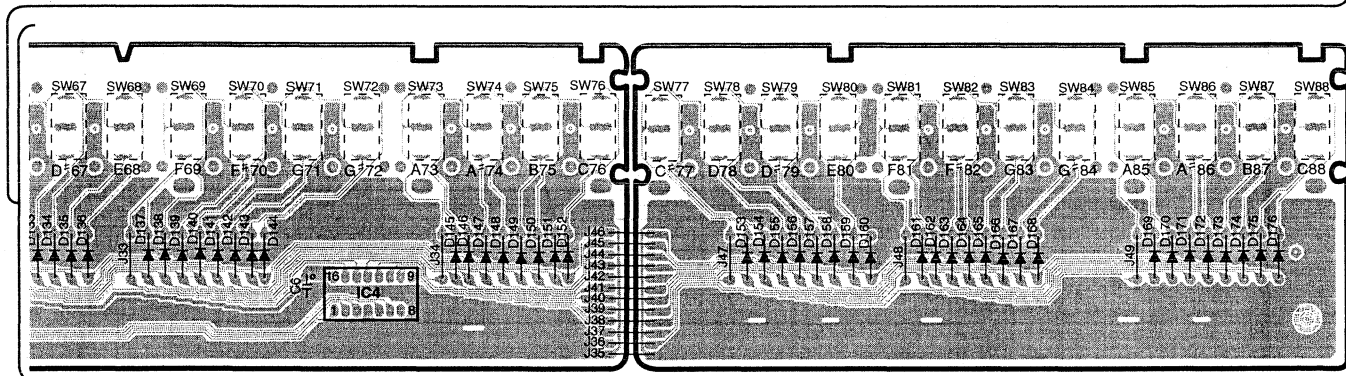
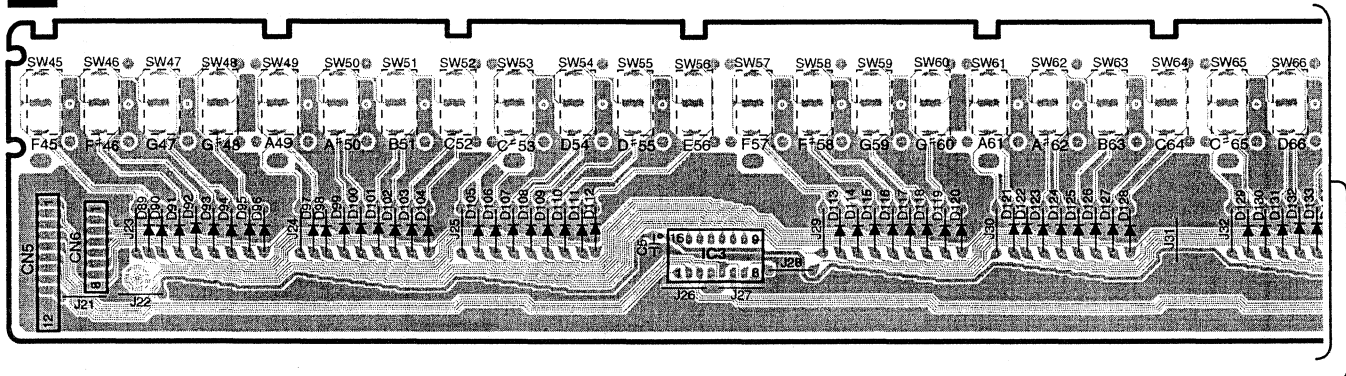
JACK CIRCUIT



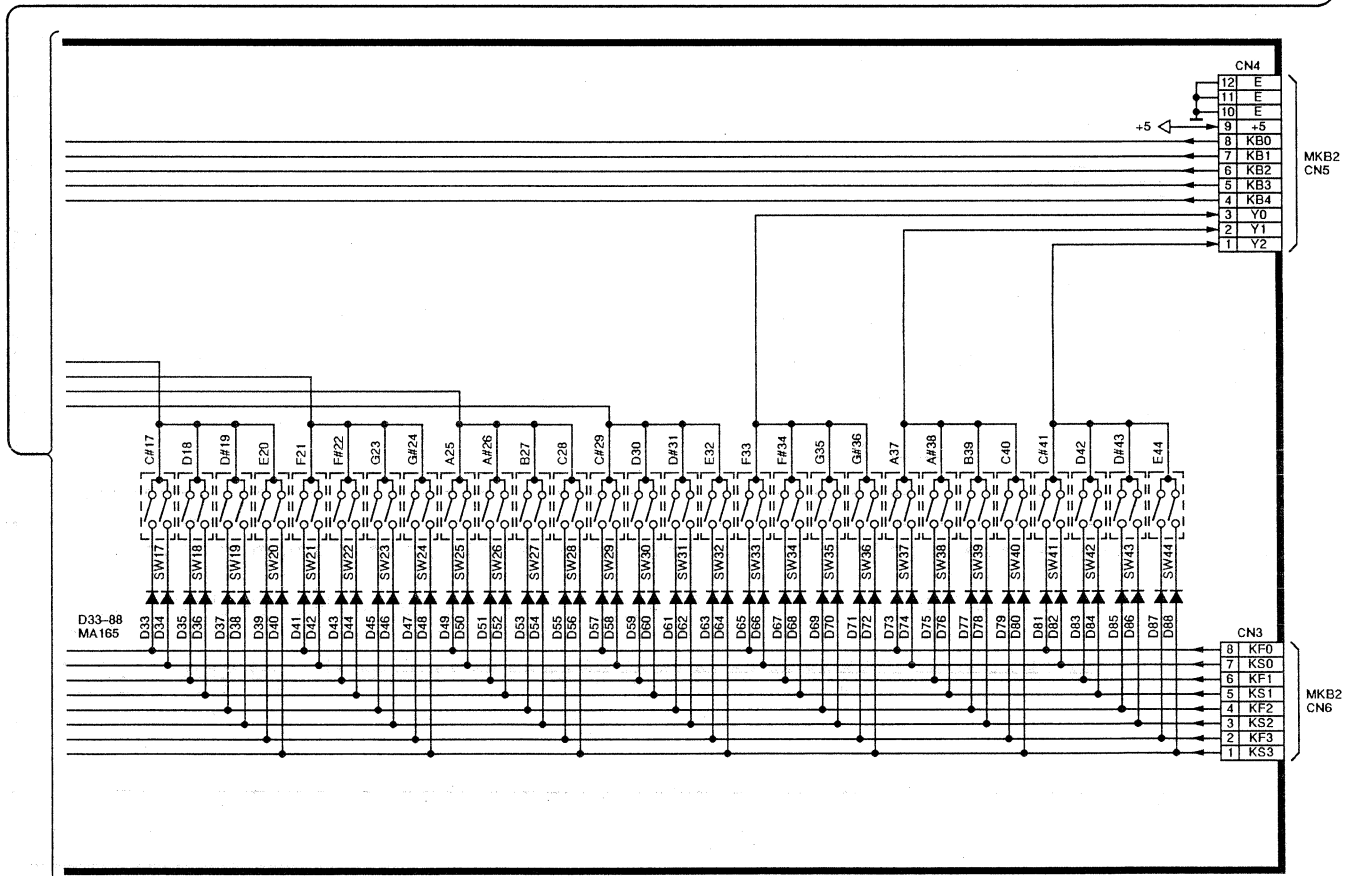
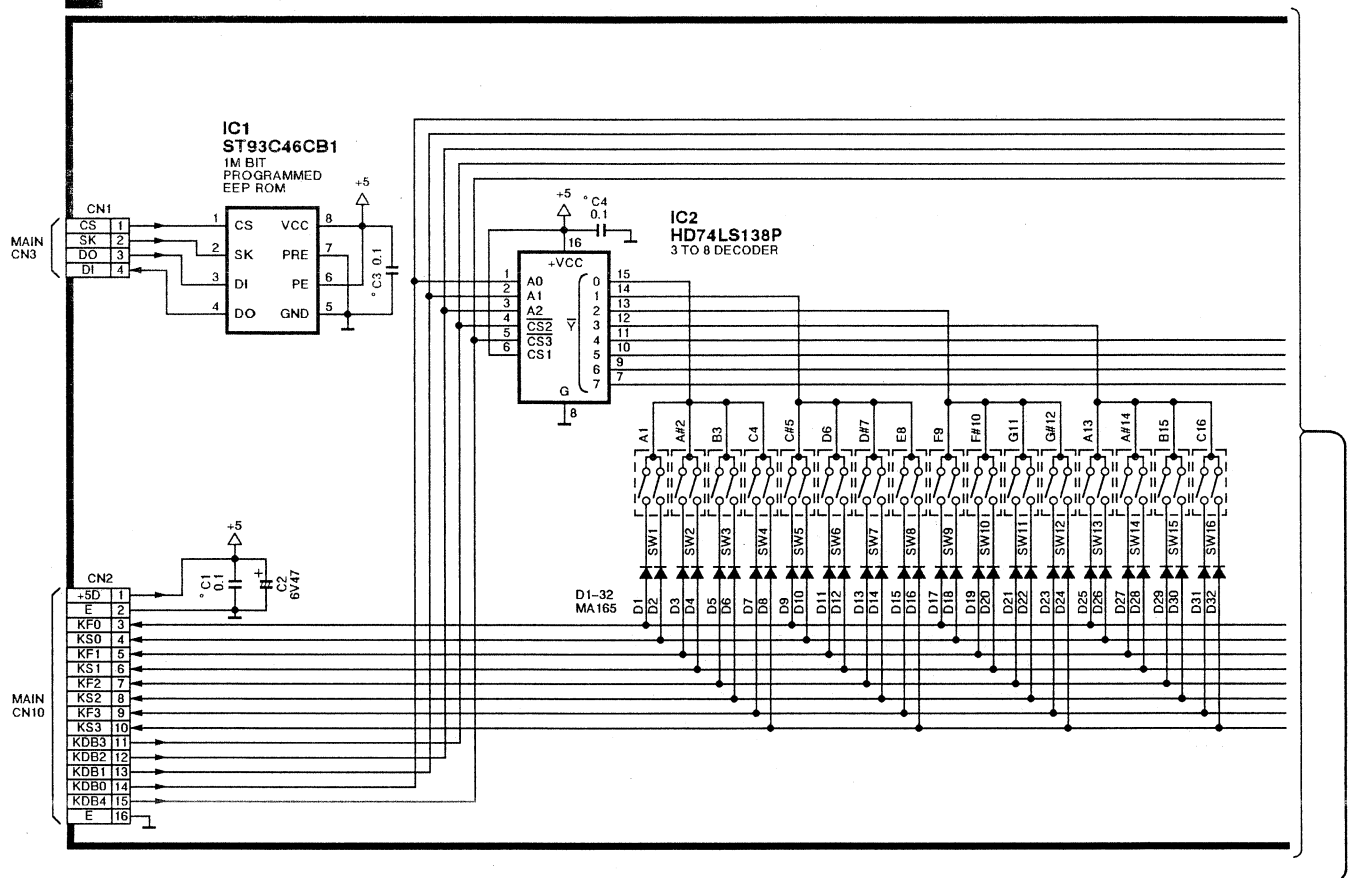
K MKB1 P.C.B.



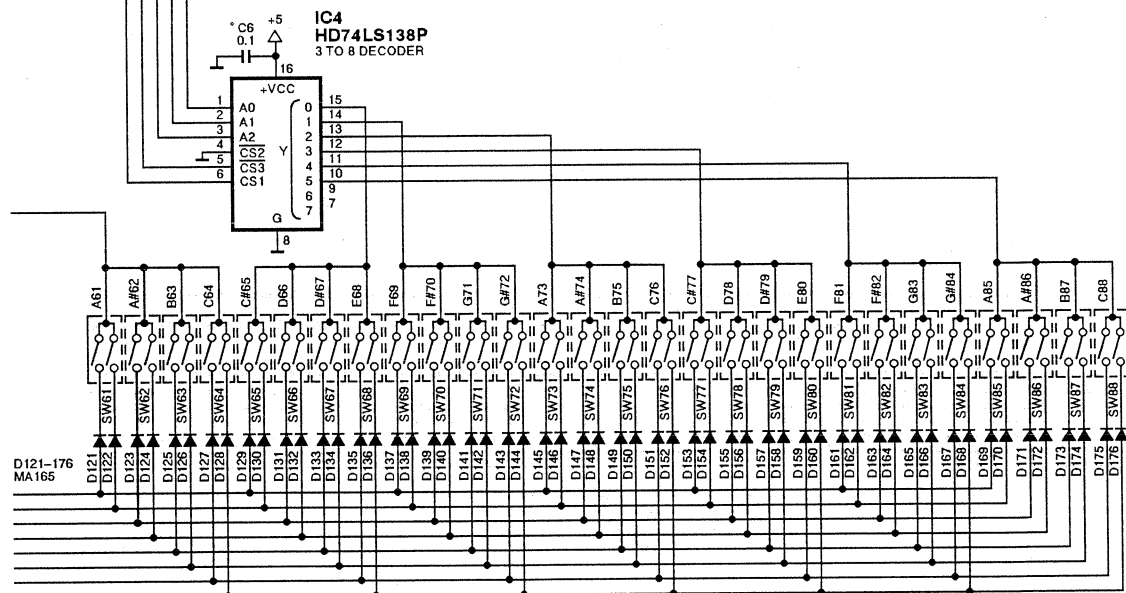
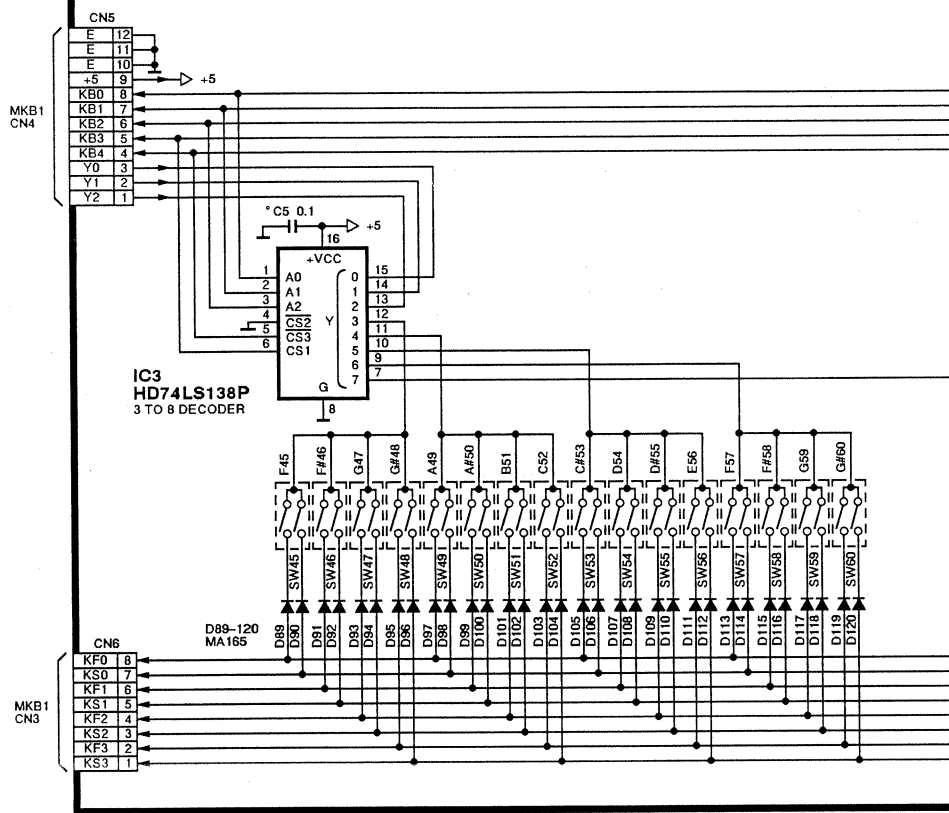
L MKB2 P.C.B.



K MKB1 CIRCUIT



MKB2 CIRCUIT



REPLACEMENT PARTS LIST.....P.C.B. and Wiring Parts

Notes:

1. The marking (RTL) indicates that the Retention Time is limited for this item. After the discontinuation of this assembly in production, the item will continue to be available for a specific period of time. The retention period of availability is dependant on the type of assembly, and in accordance with the laws governing part and product retention.
After the end of this period, the assembly will no longer be available.

2. Important safety notice

Components identified by Δ mark have special characteristics important for safety. When replacing any of these components, use only manufacturer's specified parts.

3. The "S" mark is service standard parts and may differ from production parts.
4. $\bigcirc$ mark are new parts.
5. For part No. with area mark, check the area when placing an order.

PRINTED CIRCUIT BOARD

RTL	Area	Part No.	Description	P/S	Ref. No.	Part No.	Description	P/S
$\bigcirc$ RTL		SXPG229541	MAIN	1	IC108	M5M44265CJ6S	4M BIT DYNAMIC RAM	1
$\bigcirc$ RTL		SXPG229621A	CPL	1	IC109	TMS57070FFT	DIGITAL SIGNAL PROCESSOR	1
$\bigcirc$ RTL		SXPG229721A	CPR	1	IC110	TC7SH32FU	2 INPUT OR GATE	1
$\bigcirc$ RTL		SXPG229611B	JACK2	1	IC111	M5M34051FP	BUS TRANSCEIVER	1
$\bigcirc$ RTL		SXPG229611C	INVL	1	IC115	PCM1800E-T1	A/D CONVERTER	1
$\bigcirc$ RTL		SXPG229911	JACK	1	IC117	T74VHC161FTL	BINARY COUNTER	1
$\bigcirc$ RTL		SXPG229841A	AS	1	IC118	T74VHC164FTL	SHIFT REGISTER	1
			INCLUDE ASUB		IC119	TC7SU04F	INVERTER	1
$\bigcirc$ RTL	EN EK EZ EW	SXPG230411	ACP	1	IC120	TC7SH08FU	2 INPUT AND GATE	1
	EF EA EP EH				IC121	TC7W74FU	INVERTER	1
	XL XR XP XW				IC122	TC7SH02FU	QUAD 2 INPUT NOR GATE	1
$\bigcirc$ RTL	M MC XM	SXPG230421	ACP	1	IC123	T74VHC164FTL	SHIFT REGISTER	1
$\bigcirc$ RTL	X XS XT XD	SXPG230451	ACP	1	IC124	TC7SH32FU	2 INPUT OR GATE	1
RTL		SXPG218221	PKB	1	IC125	T7WU04F	TRIPLE INVERTER	1
RTL		SXPG226611A	MKB1	1	IC126	M5218AFP	OPERATIONAL AMPLIFIER	1
RTL		SXPG226611B	MKB2	1	IC127	PCM69AU	D/A CONVERTER	1
$\bigcirc$		EDMMR63B0F	LCD	1	IC129	M5218AFP	OPERATIONAL AMPLIFIER	1

TRANSISTORS

S	Q1	2SD601AQ	TRANSISTOR	1
	Q2	2SC1815GR	TRANSISTOR	1
	Q3	2SB709AR	TRANSISTOR	1
	Q4	2SD601AQ	TRANSISTOR	1
	Q5	2SB709AR	TRANSISTOR	1
	Q6~8	2SD601AQ	TRANSISTOR	3
	Q9	Δ 2SB946P	TRANSISTOR	1
S	Q10	2SC1815GR	TRANSISTOR	1
	Q100	2SD601AQ	TRANSISTOR	1
	Q101	2SD592ARS	TRANSISTOR	1

DIODES

	D1,2	MA110	DIODE	2
	D3	MA8030L	ZENER,2.9V	1
	D4	MA110	DIODE	1
	D5	MA151WK	DIODE	1
	D6,7	MA110	DIODE	2
	D8	MA8082M	ZENER,8.2V	1
	D9	MA110	DIODE	1
	D10	MA8051L	ZENER,5.1V	1
	D11,12	MA110	DIODE	2
	D13	MA1270	ZENER	1
	D14,15	SVDGERA1502	RECTIFIER	2
	D18	MA738	DIODE	1
$\bigcirc$	D19	MA1240TR	ZENER	1
	D20	Δ MA2062LF	ZENER,6.2V	1
	D100	MA8056	ZENER,5.6V	1
	D101	MA110	DIODE	1
	D102	MA151WK	DIODE	1
	D103,104	MA110	DIODE	2
	D105	MA151WK	DIODE	1
	D106,107	MA110	DIODE	2

MAIN MAIN CIRCUIT

Ref. No.	Part No.	Description	P/S	
INTEGRATED CIRCUITS				
	IC1	MN1382QTX	RESET IC	1
○	IC2	QVIGPR702AX1	8M BIT FLASH ROM W/PROGRAM DISK	1
	IC3	TC7W14F	INVERTER	1
○	IC4	QVIGPR702AX1	8M BIT FLASH ROM W/PROGRAM DISK	1
○	IC5	QSIGX3C08005	8M BIT MASK ROM	1
○	IC6	TMP94C241AF	MAIN CPU	1
○	IC7	QSIGX3C08004	8M BIT MASK ROM	1
○	IC8	BR93LC56RFE2	1K BIT PROGRAMMED EEP ROM	1
	IC9	TC74VHC08F	QUAD 2 INPUT AND GATE	1
	IC10	TC7S08F	IC,CMOS LOGIC	1
	IC11,13	M5M44265CJ6S	4M BIT DYNAMIC RAM	2
○	IC12	TC74HC138AF	3 TO 8 DECODER	1
○	IC14	QSIGX3C24004	24M BIT RHYTHM DATA ROM	1
	IC15	D72070GF3BE	8BIT MICROCONTROLLER	1
○	IC16	M66271FP	LCD CONTROLER	1
	IC17	BA10393F	COMPARATOR	1
	IC20	TC7S04F	INVERTER	1
○	IC21	TC74HC74AF	DUAL D FLIP-FLOP	1
	IC22	TC7S08F	IC,CMOS LOGIC	1
○	IC100	TC7SH08FU	2 INPUT AND GATE	1
	IC101	M5223FPE1	OPERATIONAL AMPLIFIER	1
	IC102	TC7W74F	INVERTER	1
○	IC103	TC203C220004	TONE GENERATOR LSI	1
○	IC104	QSIGU3C32537	32M BIT MASK ROM	1
○	IC105	QSIGU3C32536	32M BIT MASK ROM	1
○	IC106	QSIGU3C32539	32M BIT MASK ROM	1
○	IC107	QSIGU3C32538	32M BIT MASK ROM	1

Ref. No.	Part No.	Description	P/S
OSCILLATORS			
○ X1	QXSG1A1000A	10MHz,CRYSTAL OSCILLATOR	1
X3	QXSG2F2400A	24MHz,CERAMIC OSCILLATOR	1
X100	QXSG2F0100DA	1MHz,CERAMIC OSCILLATOR	1
X101	QXSG1I13386A	33.8688MHZ,CRYSTAL OSCILLATOR	1
X102	QXSG1A2500A	25MHz,QUARTZ OSCILLATOR	1
COMPONENT COMBINATIONS			
Z1,2	EXBV8V101J	100 Ω × 4	2
Z3	EXBV8V472J	4.7K Ω × 4	1
Z4~7	EXBV8V101J	100 Ω × 4	4
Z13,14	EXBS8V472J	4.7k Ω × 4	2
Z15~20	EXBV8V472J	4.7K Ω × 4	6
Z21	EXBV8V102J	1K Ω × 4	1
Z22~24	EXBS8V470J	47 Ω × 4	3
Z25	EXBS8V471J	470 Ω × 4	1
Z26	EXBS8V102J	1K Ω × 4	1
Z100,101	EXBS8V471J	470 Ω × 4	2
Z102	EXBV8V471J	470 Ω × 4	1
Z103,104	EXBV8V472J	4.7K Ω × 4	2
Z105~119	EXBV8V102J	1K Ω × 4	15
Z120	EXBV8V221J	220 Ω × 4	1
COILS			
L1	QLQGT1B100MA	10μH	1
L2	QLQGT1T121SA	120μH	1
○ L3~11, 13~15	BK2125LM252T	COIL	12
○ R134, 146, 147, 149, 150	BK2125LM252T	COIL	5
IC PROTECTOR			
IP1	△ ICP-N38T104	IC PROTECTOR	1
WIRES			
W1~3	QEXGRA01005A	WIRE	3
RESISTORS			
JP2,4,11,14,102,103,105,107	ERJ6GEY0R00V	0 Ω	8
L3, 17	ERD25V0R00	0 Ω	2
R1,2	ERJ6GEYJ471V	470 Ω	2
R3~7	ERJ6GEYJ472V	4.7k Ω	5
R8	ERJ6GEYJ102V	1k Ω	1
R9	ERJ6GEYJ104V	100k Ω	1
R10	ERJ6GEYJ103V	10k Ω	1
R11	ERJ6GEYJ104V	100k Ω	1
R13	ERJ6GEYJ472V	4.7k Ω	1
R14	ERJ6GEYJ104V	100k Ω	1
R15	ERJ6GEYJ101V	100 Ω	1
R16	ERJ6GEYJ472V	4.7k Ω	1
R17	ERJ6GEYJ101V	100 Ω	1
R18	ERJ6GEYJ472V	4.7k Ω	1
R19	ERJ6GEYJ102V	1k Ω	1
R20	ERJ6GEYJ221V	220 Ω	1
R21	ERJ6GEYJ472V	4.7k Ω	1
R22	ERJ6GEYJ104V	100k Ω	1
R23	ERJ6GEYJ102V	1k Ω	1
R24	ERJ6GEYJ222V	2.2k Ω	1
R25	ERJ6GEYJ102V	1k Ω	1
R26	ERJ6GEYJ472V	4.7k Ω	1
R27	ERJ6GEY0R00V	0 Ω	1
R29,30	ERJ6GEYJ472V	4.7k Ω	2
R31	ERJ6GEY0R00V	0 Ω	1

Ref. No.	Part No.	Description	P/S
R32	ERJ6GEYJ104V	100k Ω	1
R33~35	ERJ6GEYJ102V	1k Ω	3
R36	ERJ6GEYJ472V	4.7k Ω	1
R37	ERJ6GEYJ682V	6.8k Ω	1
R38	ERJ6GEYJ101V	100 Ω	1
R39~41	ERJ6GEYJ103V	10k Ω	3
R42	ERJ6GEYJ151V	150 Ω	1
R43	ERJ6GEYJ105V	1M Ω	1
R44	ERJ6GEY0R00V	0 Ω	1
R45	ERJ6GEYJ101V	100 Ω	1
R46~49	ERJ6GEY0R00V	0 Ω	4
R50	ERJ6GEYJ471V	470 Ω	1
R51	ERJ6GEYJ101V	100 Ω	1
R52,53	ERJ6GEYJ472V	4.7k Ω	2
R56	ERJ6GEY0R00V	0 Ω	1
R59	ERJ6GEYJ682V	6.8k Ω	1
R60	ERJ6GEYJ102V	1k Ω	1
R62	ERJ6GEYJ332V	3.3k Ω	1
R63	ERJ6GEYJ101V	100 Ω	1
R64	ERJ6GEYJ470V	47 Ω	1
R65~67	ERJ6GEYJ222V	2.2k Ω	3
R68	ERJ6GEYJ102V	1k Ω	1
R69	ERJ6GEYJ222V	2.2k Ω	1
R70	ERJ6GEYJ124V	120k Ω	1
R71	ERJ6GEYJ103V	10k Ω	1
R72	ERJ6GEYJ332V	3.3k Ω	1
R73,74	ERJ6GEYJ152V	1.5k Ω	2
R75	ERJ6GEYJ154V	150k Ω	1
R77	ERJ6GEYJ102V	1k Ω	1
R78	ERJ6GEYJ474V	470k Ω	1
R79	ERJ6GEYJ334V	330k Ω	1
R80	ERJ6GEYJ471V	470 Ω	1
R81	ERJ6GEYJ333V	33k Ω	1
R82	ERJ6GEYJ472V	4.7k Ω	1
R83	ERJ6GEYJ470V	47 Ω	1
R84	ERJ6GEYJ681V	680 Ω	1
R85	ERJ6GEYJ151V	150 Ω	1
R86	ERJ6GEYJ681V	680 Ω	1
R87	ERJ6GEYJ151V	150 Ω	1
R88	ERJ6GEYJ102V	1k Ω	1
R89	ERJ6GEY0R00V	0 Ω	1
R90	ERJ6GEYJ101V	100 Ω	1
R91,92	ERJ6GEYJ102V	1k Ω	2
○ R93	△ ERG2SJ222E	2.2k Ω,2W,FLAME-PROOF	1
○ R94	△ ERG2SJ100E	10 Ω,2W,FLAME-PROOF	1
○ R95	△ ERG2SJ100E	10 Ω,2W,FLAME-PROOF	1
R96~100	ERJ6GEYJ471V	470 Ω	5
R101,102	ERJ6GEYJ102V	1k Ω	2
R103	ERJ6GEYJ105V	1M Ω	1
R104~108	ERJ6GEYJ472V	4.7k Ω	5
R109,110	ERJ6GEYJ102V	1k Ω	2
R111	ERJ6GEYJ105V	1M Ω	1
R112	ERJ6GEYJ102V	1k Ω	1
R113	ERJ6GEYJ472V	4.7k Ω	1
R114,115	ERJ6GEYJ101V	100 Ω	2
R116~118	ERJ6GEYJ471V	470 Ω	3
R119	ERJ6GEYJ102V	1k Ω	1
R120	ERJ6GEYJ563V	56k Ω	1
R121	ERJ6GEYJ563V	56k Ω	1
R122,123	ERJ6GEYJ332V	3.3k Ω	2
R124~127	ERJ6GEYJ682V	6.8k Ω	4
R128	ERJ6GEYJ105V	1M Ω	1
R129	ERJ6GEY0R00V	0 Ω	1
R130	ERJ6GEYJ223V	22k Ω	1
R131,132	ERJ6GEYJ682V	6.8k Ω	2
R133	ERJ6GEYJ223V	22k Ω	1
R135,137	ERJ6GEYJ472V	4.7k Ω	2
R138	ERJ6GEYJ471V	470 Ω	1

Ref. No.	Part No.	Description	P/S
R139	ERJ6GEYJ221V	220 Ω	1
R141	ERJ6GEYJ471V	470 Ω	1
R142~145	ERJ6GEYJ102V	1k Ω	4
R151, 153, 154	ERJ6GEYJ471V	470 Ω	3
R155~157	ERD25V0R00	0 Ω	3
CAPACITORS			
C1,2	ECUV1H101JG	100pF	2
C3,4	ECUV1H104ZFX	0.1 μ F	2
C5	ECUV1H103KBG	0.01 μ F	1
C6	ECUV1H104ZFX	0.1 μ F	1
C7	ECUV1H332KB	0.0033 μ F	1
C8	ECUV1H104ZFX	0.1 μ F	1
C9	ECUV1C224KBX	0.22 μ F	1
C10~16	ECUV1H104ZFX	0.1 μ F	7
C17	ECUV1H100DCN	10pF	1
C18	ECEA1CKA100	10 μ F,16V	1
C19	ECUV1H100DCN	10pF	1
C20	ECUV1H104ZFX	0.1 μ F	1
C21	ECUV1E473KB	0.047 μ F	1
C22~30	ECUV1H104ZFX	0.1 μ F	9
C31	ECUV1H101JG	100pF	1
C32,35	ECUV1H104ZFX	0.1 μ F	2
C36	ECUV1H223KBX	0.022 μ F	1
C37	ECUV1H182JX	0.0018 μ F	1
C38,39	ECUV1H104ZFX	0.1 μ F	2
C40, 41	ECUV1H333KBX	0.033 μ F	2
C42,45	ECUV1H104ZFX	0.1 μ F	2
C46	EECS5R5V105	1F, 5.5V,MEMORY BACK-UP	1
C47	ECA0JM221	220 μ F,6.3V	1
C48	ECEA1CKA100	10 μ F,16V	1
C49	ECUV1H104ZFX	0.1 μ F	1
C50	ECA1JM220B	22 μ F,63V	1
C51	ECEA1HKA010	1 μ F,50V	1
C52	ECEA1CKA100	10 μ F,16V	1
C53	ECEA1HKA010	1 μ F,50V	1
C54	ECEA1CKA100	10 μ F,16V	1
C55	ECUV1H222KX	0.0022 μ F	1
C56	ECUV1H101JG	100pF	1
C57	ECUV1H682KBG	0.0068 μ F	1
C58	ECQV1H104JM	0.1 μ F	1
C59	ECA2AM220B	22 μ F,100V	1
C60	ECUV1H101JG	100pF	1
C62	ECUV1E473KB	0.047 μ F	1
C63	ECA0JM102	1000 μ F,6.3V	1
C65~67	ECUV1H104ZFX	0.1 μ F	3
C68	ECUV1H331JG	330pF	1
C69	ECEA0JKA331	100 μ F, 6.3V	1
C70~72	ECUV1H104ZFX	0.1 μ F	3
C73	ECUV1H101JG	100pF	1
C74	ECUV1H333KBX	0.033 μ F	1
C75	QCBG1H104ZFA	0.1 μ F	1
C78	ECUV1H104ZFX	0.1 μ F	1
C100~104	ECUV1H101JG	100pF	5
C105,107	ECUV1H060DCN	6pF	2
C108~112	ECUV1H104ZFX	0.1 μ F	5
C113	ECEA0JKA470	47 μ F,6.3V	1
C114~124	ECUV1H104ZFX	0.1 μ F	11
C125	ECUV1H103KBG	0.01 μ F	1
C126	ECUV1C224KBX	0.22 μ F	1
C127	ECUV1H104ZFX	0.1 μ F	1
C130,131	ECUV1H100DCN	10pF	2
C132~136	ECUV1H104ZFX	0.1 μ F	5
C137,138	ECUV1H471JG	470pF	2
C139,140,142	ECUV1H104ZFX	0.1 μ F	3
C144	ECRF1H104ZF	0.1 μ F	1
C145	ECA1CM101	100 μ F,16V	1

Ref. No.	Part No.	Description	P/S
C146	ECUV1H104ZFX	0.1 μ F	1
C147,148	ECEA1HKN010	1 μ F,50V	2
C149	ECUV1H101JG	100pF	1
C150	ECUV1H104ZFX	0.1 μ F	1
C151	ECEA0JKA101	100 μ F,6.3V	1
C152	ECEA1CKA100	10 μ F,16V	1
C153~155	ECUV1H104ZFX	0.1 μ F	3
C156	ECUV1H101JG	100pF	1
C157	ECUV1H104ZFX	0.1 μ F	1
C158,159	ECUV1H221JG	220pF	2
C160,161	ECA1CM101	100 μ F,16V	2
C162,163	ECUV1H681JG	680pF	2
C164~166	ECEA1CKA100	10 μ F,16V	3
C167	ECUV1H104ZFX	0.1 μ F	1

CPL CONTROL PANEL LEFT CIRCUIT

Ref. No.	Part No.	Description	P/S
INTEGRATED CIRCUITS			
IC1	M37471M2196S	8 BIT MICROCOMPUTER	1
IC2,3	HD74LS07P	HEX BUFFERS	2
TRANSISTORS			
Q1~5	2SA830SB	TRANSISTOR	5
DIODES			
D1~61	MA165	DIODE	61
D62~64,68,69,71~84, 86,87,90,94~99	LN282R	LED (RED)	28
D65~67,70,85,88,89, 91~93,100,101	LN382G	LED (GREEN)	12
OSCILLATOR			
X1	EF0EC4004A3	4MHz,CERAMIC OSCILLATOR	1
SWITCHES			
S1~61 S62	EVQ21507K QSRGT002AA	PUSH SWITCH ENCODER SWITCH	61 1
VARIABLE RESISTORS			
VR1	QRVG25N01B53	5K Ω B,APC/SEQUENCER VOLUME	1
VR2	QRVG25P01B53	5K Ω B,MAIN VOLUME	1
RESISTORS			
R1,2	ERDS2T0	0 Ω ,1/4W	2
R3	ERDS2TJ101	100 Ω	1
R4	ERDS2TJ471	470 Ω	1
R5,6	ERDS2TJ221	220 Ω	2
R7	ERDS2TJ471	470 Ω	1
R8~11	ERDS2TJ472	4.7k Ω	4
R12,13	ERDS2TJ473	47k Ω	2
R14	ERDS2TJ104	100k Ω	1
R16~28	ERDS2TJ103	10k Ω	13
R29~37	ERDS2TJ101	100 Ω	9
R38	ERDS2TJ333	33k Ω	1
CAPACITORS			
C1	ECEA0JKA221	220 μ F, 6.3V	1
C2	ECBA1C222MR	0.0022 μ F	1

Ref. No.	Part No.	Description	P/S
C3	ECEA0JKS101	100μF,6.3V	1
C4	ECEA0JKA331	330μF,6.3V	1
C5,6	ECBA1H102KB	0.001μF	2
○ C7	QCBG1H104ZFA	0.1μF	1
○ C8~10	QCBG1H104ZFA	0.1μF	3

CPR CONTROL PANEL RIGHT CIRCUIT

Ref. No.	Part No.	Description	P/S
INTEGRATED CIRCUITS			
IC1	M37471M2196S	8 BIT MICROCOMPUTER	1
IC2,3	HD74LS07P	HEX BUFFERS	2
TRANSISTORS			
Q1~5	2SA830SB	TRANSISTOR	5
DIODES			
D1~70	MA165	DIODE	70
D71~81,83-87, 94~105,115~121	LN282R	LED (RED)	35
D82,88,89,91,93, 106~114	LN382G	LED (GREEN)	14
OSCILLATOR			
X1	EF0EC4004A3	4MHz,CERAMIC OSCILLATOR	1
SWITCHES			
S1~5,7~70	EVQ21507K	PUSH SWITCH	69
RESISTORS			
R1,2	ERDS2T0	0Ω,1/4W	2
R4	ERDS2TJ471	470Ω	1
R5,6	ERDS2TJ221	220Ω	2
R7	ERDS2TJ471	470Ω	1
R8,9	ERDS2TJ103	10kΩ	2
R10	ERDS2TJ333	33kΩ	1
R16~28	ERDS2TJ103	10kΩ	13
R29~40	ERDS2TJ101	100Ω	12
CAPACITORS			
○ C1	QCBG1H104ZFA	0.1μF	1
C2	ECBA1C222MR	0.0022μF	1
C4	ECEA0JKA331	330μF,6.3V	1
○ C9	QCBG1H104ZFA	0.1μF	1
○ C10	QCBG1H104ZFA	0.1μF	1

JACK2 JACK2 CIRCUIT

Ref. No.	Part No.	Description	P/S
INTEGRATED CIRCUIT			
IC1	M5218AL	OPERATIONAL AMPLIFIER	1
TRANSISTOR			
S Q1	2SC1815GR	TRANSISTOR	1

Ref. No.	Part No.	Description	P/S
DIODES			
D1	MA165	DIODE	1
D2	SEL4214RLC05	LED,POWER INDICATOR	1
COILS			
L1,2	QLQGT3T131TA	130μH×3	2
JACKS			
○ JK1	QJJG010AA	HEADPHONE1	1
○ JK2	QJJG010AA	HEADPHONE2	1
○ JK3	QJJG011AA	MIC	1
VARIABLE RESISTOR			
○ VR1	QRVG09A02B54	50K,MIC VOLUME	1
RESISTORS			
R1~4	△ ERG1SJ470	47Ω,1W,FLAME-PROOF	4
R5	ERDS2TJ104	100kΩ	1
R6	ERDS2TJ472	4.7kΩ	1
R7	ERDS2TJ222	2.2kΩ	1
R8	ERDS2TJ104	100kΩ	1
R9	ERDS2TJ223	22kΩ	1
R10	ERDS2TJ683	68kΩ	1
R11	ERDS2TJ222	2.2kΩ	1
R12	ERDS2TJ152	1.5kΩ	1
R13	ERDS2TJ222	2.2kΩ	1
CAPACITORS			
○ C1	QCBG1H473ZFA	0.047μF	1
○ C2	QCBG1H473ZFA	0.047μF	1
○ C3	QCBG1H104ZFA	0.1μF	1
C4	ECEA1HKN010	1μF,50V	1
○ C5	ECBT1H470J5	47pF	1
○ C6	QCBG1H104ZFA	0.1μF	1
C7	ECEA1HKN010	1μF,50V	1
C8	ECEA0JKA470	47μF,6.3V	1
C9	ECBA1C682MR5	0.0068μF	1
○ C10	QCBG1H104ZFA	0.1μF	1
C11	ECEA1HKN010	1μF,50V	1

INV L INVERTER L CIRCUIT

Ref. No.	Part No.	Description	P/S
TRANSISTORS			
Q1,2	2SD592ARS	TRANSISTOR	2
TRANSFORMER			
T1	△ QTDG003A	TRANSFORMER	1
RESISTORS			
R1,2	ERDS2TJ562	5.6kΩ	2
CAPACITORS			
C1	ECA0JM102	1000μF,6.3V	1
C2	ECQB1H473JF	0.047μF	1
S C3	ECCD3F180JGE	18pF	1

JACK JACK CIRCUIT

Ref. No.	Part No.	Description	P/S
INTEGRATED CIRCUIT			
IC1	SVIGTLP513	PHOTO COUPLER	1
TRANSISTORS			
S Q1,2	2SA1015-GR	2SA933STRS (SUB. PART)	2
DIODES			
D1~5	MA165	DIODE	5
COILS			
L5~9	QLQGT3T131TA	130 μ H $\times$ 3	5
L10	QLQGT1B100MA	10 μ H	4
L14	QLQGT1B800MA	80 μ H	1
L21	QLBG005A	COIL	1
JACKS			
JK1	QJSG007AA	PEDAL IN	1
JK2	QJSG018AA	COMPUTER	1
JK3	QJSG016AA	MIDI IN	1
JK4	QJSG016AA	MIDI OUT	1
JK5	QJSG016AA	MIDI THRU	1
JK6	QJJG003AA	AUX IN L	1
JK7	QJJG003AA	AUX IN R	1
JK8	QJJG003AA	LINE OUT R	1
JK9	QJJG003AA	LINE OUT L	1
SWITCH			
S1	QSSGT011AA	SLIDE SWITCH	1
WIRES			
W1~3	QEXGRA01005A	WIRE	3
RESISTORS			
R1,2	ERDS2TJ680	68 Ω	2
R3	ERDS2TJ151	150 Ω	1
R4	ERDS2TJ330	33 Ω	1
R5	ERDS2TJ221	220 Ω	1
R6	ERDS2TJ331	330 Ω	1
R7,8	ERDS2TJ681	680 Ω	2
R10, 11, 13, 14	ERDS2TJ471	470 Ω	4
R15~17	ERDS2TJ102	1k Ω	3
CAPACITORS			
C1	QCBG1H104ZFA	0.1 μ F	1
C2,3	ECCR1H221J	220pF	2
C4	QCBG1H104ZFA	0.1 μ F	1
C5	QCBG1H104ZFA	0.1 μ F	1
C6,7,10,11	ECBA1C222MR	0.0022 μ F	4
C8	QCBG1H104ZFA	0.1 μ F	1
C9	QCBG1H104ZFA	0.1 μ F	1

AS AMP & POWER SUPPLY CIRCUIT

Ref. No.	Part No.	Description	P/S
INTEGRATED CIRCUITS			
IC1~8	M5218AL	OPERATIONAL AMPLIFIER	8
IC9	SVIGM5238L	OPERATIONAL AMPLIFIER	1
TRANSISTORS			
S Q1	2SC1815GR	TRANSISTOR	1
Q2	2SD2374A-P	TRANSISTOR	1
S Q3	2SA1015-GR	2SA933STRS (SUB. PART)	1
Q4	2SB1548A-P	TRANSISTOR	1
S Q9	2SC1815GR	TRANSISTOR	1
S Q10,11	2SA1015-G Ω R	2SA933STRS (SUB. PART)	2
Q12	2SD592ARS	TRANSISTOR	1
Q13	2SB621ARS	TRANSISTOR	1
Q14	2SD592ARS	TRANSISTOR	1
Q15	2SB621ARS	TRANSISTOR	1
Q16	FX30KMJ-3	FET	1
Q17	FS30KMJ-3	FET	1
Q18	FX30KMJ-3	FET	1
Q19	FS30KMJ-3	FET	1
Q20~24	2SC1815GR	TRANSISTOR	5
S Q25	2SA1015-GR	2SA933STRS (SUB. PART)	1
S Q26~28	2SC1815GR	TRANSISTOR	3
S Q29	2SA1015-GR	2SA933STRS (SUB. PART)	1
DIODES			
D1,2	SVDGERA1502	RECTIFIER	2
S D3,5,7,9	SVDS3V20	RECTIFIER	4
D11	SVDGERA1502	RECTIFIER	1
D12,13	MA4160	ZENER,16.0V	2
D14,15	MA4180	ZENER,18V	2
D20	EK04	DIODE	1
D21	MA165	DIODE	1
D22	EK04	DIODE	1
D23,24	MA165	DIODE	2
D25,26	MA4220M	ZENER,22V	2
COILS			
L1~4	QLBG005A	COIL	4
L5	QLQGT3T131TA	130 μ H $\times$ 3	1
L6	QLQGT1B800MA	80 μ H	1
L7	QLQGT1D600MA	60 μ H	1
L8	QLQGT1D600MA	60 μ H	1
IC PROTECTORS			
IP3,4	ICP-N75T104	IC PROTECTOR	2
IP5,6	ICP-N10T104	IC PROTECTOR	2
IP7, 8	ICP-N75T104	IC PROTECTOR	2
WIRES			
W1	QEXGRA01010J	WIRE	1
W2	QEXGRA01005A	WIRE	1
VARIABLE RESISTOR			
VR1	QRNG0681C102	1k Ω	1
RESISTORS			
R1,2	ERDS2TJ103	10k Ω	2
R3,4	ERDS2TJ332	3.3k Ω	2
R5,6	ERDS2TJ103	10k Ω	2
R9	ERDS2TJ104	100k Ω	1
R10	ERDS2TJ473	47k Ω	1

Ref. No.	Part No.	Description	P/S	Ref. No.	Part No.	Description	P/S
R11	ERDS2TJ103	10k Ω	1	R90	ERDS2TJ103	10k Ω	1
R12	ERDS2TJ332	3.3k Ω	1	R91	ERDS2TJ472	4.7k Ω	1
R13	ERDS2TJ334	330k Ω	1	R92	ERDS2TJ103	10k Ω	1
R14	ERDS2TJ104	100k Ω	1	R93	ERDS2TJ472	4.7k Ω	1
R15	ERDS2TJ224	220k Ω	1	R94	ERDS2TJ473	47k Ω	1
R16	ERDS2TJ334	330k Ω	1	R95	ERDS2TJ332	3.3k Ω	1
R18	ERDS2TJ220	22 Ω	1	R96	ERDS2TJ103	10k Ω	1
R19	ERDS2TJ222	2.2k Ω	1	R97,98	ERQ2CJP6R8S	6.8 Ω , 2W, FUSE TYPE	2
R20	ERD2FCVJ4R7	4.7 Ω , 1/4W, FUSE TYPE	1	R99, 100	ERDS2TJ225	2.2M Ω	2
R21	ERD2FCVG220	22 Ω , 1/4W, FUSE TYPE	1	R101, 102	ERDS2TJ682	6.8k Ω	2
R22	ERDS2TJ224	220k Ω	1	CAPACITORS			
R23	ERDS2TJ334	330k Ω	1	C1	ECQE1A104M6	0.1 μ F, 125V	1
R24	ERDS2TJ220	22 Ω	1	C2	ECOS1HP682DB	6800 μ F, 50V	1
R25	ERDS2TJ222	2.2k Ω	1	C3	ECOS1HP682DB	6800 μ F, 50V	1
R26	ERD2FCVJ4R7	4.7 Ω , 1/4W, FUSE TYPE	1	C4,5	ECQV1H155JL	1.5 μ F	2
R27	ERD2FCVG220	22 Ω , 1/4W, FUSE TYPE	1	C6	ECEA1HKA010	1 μ F, 50V	1
R28,29	ERQ2CJP2R0S	2 Ω , 2W, FUSE TYPE	2	C7	ECEA1CKA100	10 μ F, 16V	1
R30	ERDS2TJ682	6.8k Ω	1	C8	ECEA1HKA010	1 μ F, 50V	1
R31	ERDS2TJ332	3.3k Ω	1	C9	ECA1CM101	100 μ F, 16V	1
R32	ERDS2TJ224	220k Ω	1	C11	ECEA1CKA100	10 μ F, 16V	1
R33	ERDS2TJ152	1.5k Ω	1	C13	ECA1CM101	100 μ F, 16V	1
R34	ERDS2TJ154	150k Ω	1	C14,15	ECCR1H100D	10pF	2
R35	ERDS2TJ152	1.5k Ω	1	C16	QCBG1H104ZFA	0.1 μ F	1
R36	ERDS2TJ124	120k Ω	1	C17	ECQG1H682KZ	0.0068 μ F	1
R37	ERDS2TJ152	1.5k Ω	1	C18	ECQG1H222KZ	0.0022 μ F	1
R38	ERDS2TJ333	33k Ω	1	C19	ECCR1H681J	680pF	1
R39	ERDS2TJ152	1.5k Ω	1	C20	ECQB1H103JF	0.01 μ F	1
R40	ERDS2TJ563	56k Ω	1	C21	ECQG1H152KZ	0.0015 μ F	1
R41	ERDS2TJ681	680 Ω	1	C22	ECQB1H333JF	0.033 μ F	1
R42	ERDS2TJ154	150k Ω	1	C23	ECQG1H332KZ	0.0033 μ F	1
R43	ERDS2TJ682	6.8k Ω	1	C24	ECQV1H154JM	0.15 μ F	1
R44	ERDS2TJ332	3.3k Ω	1	C25	ECQB1H333JF	0.033 μ F	1
R45	ERDS2TJ224	220k Ω	1	C26	ECQV1H474JM	0.47 μ F	1
R46	ERDS2TJ182	1.8k Ω	1	C27	ECQB1H473JF	0.047 μ F	1
R47	ERDS2TJ154	150k Ω	1	C28	ECEA1HKN2R2	2.2 μ F, 50V	1
R48	ERDS2TJ152	1.5k Ω	1	C29	ECQV1H224JM	0.22 μ F	1
R49	ERDS2TJ124	120k Ω	1	C30	ECQG1H682KZ	0.0068 μ F	1
R50	ERDS2TJ152	1.5k Ω	1	C31	ECQG1H222KZ	0.0022 μ F	1
R51	ERDS2TJ154	150k Ω	1	C32	ECCR1H681J	680pF	1
R52	ERDS2TJ152	1.5k Ω	1	C33	ECQB1H103JF	0.01 μ F	1
R53	ERDS2TJ563	56k Ω	1	C34	ECQG1H152KZ	0.0015 μ F	1
R54	ERDS2TJ681	680 Ω	1	C35	ECQB1H333JF	0.033 μ F	1
R55	ERDS2TJ154	150k Ω	1	C36	ECQG1H332KZ	0.0033 μ F	1
R56	ERDS2TJ393	39k Ω	1	C37	ECQV1H154JM	0.15 μ F	1
R57	ERDS2TJ334	330k Ω	1	C38	ECQB1H333JF	0.033 μ F	1
R58	ERDS2TJ222	2.2k Ω	1	C39	ECQV1H474JM	0.47 μ F	1
R59	ERDS2TJ393	39k Ω	1	C40	ECQB1H473JF	0.047 μ F	1
R60	ERDS2TJ104	100k Ω	1	C41	ECEA1HKN2R2	2.2 μ F, 50V	1
R61	ERDS2TJ105	1M Ω	1	C42	ECQV1H224JM	0.22 μ F	1
R62	ERDS2TJ222	2.2k Ω	1	C43	ECCR1H100D	10pF	1
R65	ERDS2TJ393	39k Ω	1	C44	ECCR1H221J	220pF	1
R66	ERDS2TJ334	330k Ω	1	C46	ECQG1H222KZ	0.0022 μ F	1
R67	ERDS2TJ222	2.2k Ω	1	C47	ECCR1H100D	10pF	1
R68	ERDS2TJ393	39k Ω	1	C48	ECCR1H221J	220pF	1
R69	ERDS2TJ104	100k Ω	1	C50	ECQG1H222KZ	0.0022 μ F	1
R70	ERDS2TJ105	1M Ω	1	C51	ECA1HHG221B	220 μ F, 50V	1
R71	ERDS2TJ222	2.2k Ω	1	C52	ECA1HHG221B	220 μ F, 50V	1
R74,75	ERF5TJ100	10 Ω , 5W, FLAME-PROOF	2	C53	ECQV1H225JL3	2.2 μ F	1
R78	ERF2EXKR10V	0.1 Ω , 2W, FLAME-PROOF	1	C57	ECQV1H225JL3	2.2 μ F	1
R79	ERF2EXKR10V	0.1 Ω , 2W, FLAME-PROOF	1	C59,60	ECEA50Y1R5K	1.5 μ F, 50V	2
R80	ERDS2TJ223	22k Ω	1	C61,62	ECEA50Y47	47 μ F, 50V	2
R81	ERDS2TJ153	15k Ω	1	C63	QCBG1H104ZFA	0.1 μ F	1
R82	ERDS2TJ333	33k Ω	1	C64	QCBG1H104ZFA	0.1 μ F	1
R83	ERDS2TJ223	22k Ω	1	C65,66	ECEA1HKN010	1 μ F, 50V	2
R84	ERDS2TJ153	15k Ω	1	C67	ECQG1H472KZ	0.0047 μ F	1
R85	ERDS2TJ333	33k Ω	1				
R86	ERDS2TJ103	10k Ω	1				
R87,89	ERDS2TJ104	100k Ω	2				

ASUB ASUB CIRCUIT

Ref. No.	Part No.	Description	P/S
TRANSISTORS			
S Q101	2SA1015-GR	2SA933STRS (SUB. PART)	1
S Q102	2SC1815GR	TRANSISTOR	1
S Q103,104	2SA1015-GR	2SA933STRS (SUB. PART)	2
○ Q105	2SA970GTPE2	TRANSISTOR	1
○ Q106	2SC2240GTPE2	TRANSISTOR	1
S Q107	2SC1815GR	TRANSISTOR	1
S Q108,111	2SA1015-GR	2SA933STRS (SUB. PART)	2
○ Q109	2SA970GTPE2	TRANSISTOR	1
○ Q110	2SC2240GTPE2	TRANSISTOR	1
S Q112	2SC1815GR	TRANSISTOR	1
S Q113,114	2SA1015-GR	2SA933STRS (SUB. PART)	2
○ Q115	2SA970GTPE2	TRANSISTOR	1
○ Q116	2SC2240GTPE2	TRANSISTOR	1
S Q117	2SC1815GR	TRANSISTOR	1
S Q118	2SA1015-GR	2SA933STRS (SUB. PART)	1
○ Q119	2SA970GTPE2	TRANSISTOR	1
○ Q120	2SC2240GTPE2	TRANSISTOR	1
S Q121	2SC1815GR	TRANSISTOR	1
S Q122	2SA1015-GR	2SA933STRS (SUB. PART)	1
S Q123	2SC1815GR	TRANSISTOR	1
S Q124	2SA1015-GR	2SA933STRS (SUB. PART)	1
DIODES			
D101, 102, 107, 108	MA165	DIODE	4
RESISTORS			
○ R101	△ ERD2FCVG221T	220 Ω, 1/4W, FUSE TYPE	1
R102,103	ERDS2TJ152	1.5k Ω	2
R104	ERDS2TJ472	4.7k Ω	1
○ R105	△ ERD2FCVG221T	220 Ω, 1/4W, FUSE TYPE	1
○ R106	△ ERD2FCVG221T	220 Ω, 1/4W, FUSE TYPE	1
○ R107	△ ERD2FCVG471T	470 Ω, 1/4W, FUSE TYPE	1
○ R108	△ ERD2FCVG471T	470 Ω, 1/4W, FUSE TYPE	1
R109,110	ERDS2TJ103	10k Ω	2
○ R113	△ ERD2FCVG221T	220 Ω, 1/4W, FUSE TYPE	1
R114,115	ERDS2TJ152	1.5k Ω	2
R116	ERDS2TJ472	4.7k Ω	1
○ R117	△ ERD2FCVG221T	220 Ω, 1/4W, FUSE TYPE	1
○ R118	△ ERD2FCVG221T	220 Ω, 1/4W, FUSE TYPE	1
○ R119	△ ERD2FCVG471T	470 Ω, 1/4W, FUSE TYPE	1
○ R120	△ ERD2FCVG471T	470 Ω, 1/4W, FUSE TYPE	1
R121,122	ERDS2TJ103	10k Ω	2
CAPACITORS			
C101	ECBA1H151KB	150pF	1
C102	ECBA1H681KB5	680pF	1
C103	ECBA1H681KB5	680pF	1
C104	ECBA1H151KB	150pF	1
C105	ECBA1H681KB5	680pF	1
C106	ECBA1H681KB5	680pF	1

ACP AC POWER SUPPLY CIRCUIT

Ref. No.	Part No.	Description	P/S
COIL			
L1	△ TQLQGT2T100SA	10μH×2	1
JACK			
JK1	△ SJVD0203B	AC INLET	1
SWITCH			
S1	△ SSRG100A	VOLTAGE SELECTOR, X XS XD XT	1
FUSES			
○ F1	△ XBA1C40NB100	T4A, 125V, M MC XM	1
○ F1	△ XBA2C31TB0L	T3.15A, 250V, X XS XD XT	1
○ F2	△ XBA2C16TB0L	T1.6A, 250V, X XS XD XT	1
○ F3	△ XBA2C16TB0L	T1.6A, 250V, EN EZ EW EF EA EH EP EK XL XR XP XW X XS XD XT	1
CAPACITORS			
C1	△ ECKCVA1472MF	4700pF, LINE CAPACITOR	1
C2	△ ECQU2A104MN	0.1μF, 250V, ACROSS-THE LINE CAPACITOR	1

PKB PEDAL KEYBOARD CIRCUIT

Ref. No.	Part No.	Description	P/S
SWITCHES			
S1~3	QSTGT001AA	LEVER SWITCH	3
RESISTORS			
R8~10	ERDS2TJ472	4.7k Ω	3
CAPACITOR			
C1	ECRF1H104ZF	0.1μF	1

MKB1 MANUAL KEYBOARD 1 CIRCUIT

Ref. No.	Part No.	Description	P/S
INTEGRATED CIRCUITS			
IC1	ST93C46CB1	1M BIT PROGRAMMED EEPROM	1
IC2	HD74LS138P	3 TO 8 DECODER	1
DIODES			
D1~88	MA165	DIODE	88
CAPACITORS			
C1	ECRF1H104ZF	0.1μF	1
C2	ECEA0JKA470	47μF, 6.3V	1
C3,4	ECRF1H104ZF	0.1μF	2

MKB2 MANUAL KEYBOARD 2 CIRCUIT

Ref. No.	Part No.	Description	P/S
INTEGRATED CIRCUITS			
IC3,4	HD74LS138P	3 TO 8 DECODER	2
DIODES			
D89~176	MA165	DIODE	88
CAPACITORS			
C5,6	ECRF1H104ZF	0.1μF	2

WIRING PARTS

Ref. No.	Part No.	Description	P/S
○ W1	QEXGVH06028B	CONNECTOR WITH WIRE	1
○ W2	QEXGVH04095C	CONNECTOR WITH WIRE	1
W3	QEXGSS06055A	CONNECTOR WITH WIRE	1
○ W4	QEXGVH03140B	CONNECTOR WITH WIRE	1
W5	QJLG013AA	PEDAL CORD	1
W6	QEXGSS16100A	CONNECTOR WITH WIRE	1
W7	QEXGSS04100A	CONNECTOR WITH WIRE	1
W8	QEXGEL06020B	CONNECTOR WITH WIRE	1
W9	QEXGEL06085D	CONNECTOR WITH WIRE	1
W10	QEXGSS05045B	CONNECTOR WITH WIRE	1
W11	QEXGSS04010A	CONNECTOR WITH WIRE	1
○ W12	QEXGSS12055A	CONNECTOR WITH WIRE	1
○ W13	QEXGZA05078B	CONNECTOR WITH WIRE	1
○ W14	QEXGSS05095B	CONNECTOR WITH WIRE	1
○ W15	QEXGZA34075B	CONNECTOR WITH WIRE	1
W16	QEUGKCH06BB	FLAT CABLE	1
W17	QEUGK8H07BB	FLAT CABLE	1
W18	QEXGSS10025A	CONNECTOR WITH WIRE	1
○ W19	QEXGSS07025A	CONNECTOR WITH WIRE	1
W20	QEXGSS05025A	CONNECTOR WITH WIRE	1

REPLACEMENT PARTS LIST.....Cabinet and Chassis Parts

Notes:

- The marking (RTL) indicates that the Retention Time is limited for this item. After the discontinuation of this assembly in production, the item will continue to be available for a specific period of time. The retention period of availability is dependant on the type of assembly, and in accordance with the laws governing part and product retention.
After the end of this period, the assembly will no longer be available.
- mark are new parts.
Cabinet Colour
● SX-PR702.....Black ● SX-PR702M.....Walnut

3. Important safety notice

Components identified by △ mark have special characteristics important for safety. When replacing any of these components, use only manufacturer's specified parts.

- For part No. with area mark, check the area when placing an order.

- The raw material indication for synthetic resin

In order to facilitate classification of parts of synthetic resin manufacture and to promote the recycling of natural resources, a raw material symbol for such parts is indicated in the Ref. No./Material column.

SX-PR702 CABINET & CHASSIS PARTS

Ref. No.	Part No.	Description	P/S
SPEAKERS			
○ SP1,2	EAS16PL471B3	16cm,6Ω	2
SP3,4	EAS15S09A	SPEAKER,13×6cm 8Ω	2
SP5,6	EAS65PH31A3	6.5cm,8Ω	2
POWER TRANSFORMERS			
○ T1	△ QTPG1M053A	POWER TRANSFORMER, EN EK EZ EW EF EA EP EH X XL XR XS XT XD XP XW	1
○ T1	△ QTPG1M054A	POWER TRANSFORMER, M MC XM	1
POWER CORDS & PLUG			
PC1	△ QJAG025AA	POWER CORD, M MC XM	1
○ PC1	△ QJAG029AA	POWER CORD, XL XR	1
○ PC1	△ QJAG028AA	POWER CORD, EK XD	1
○ PC1	△ QJAG027AA	POWER CORD, EN EZ EW EF EA EP EH X XS XT XP XW	1
PC2	△ SJP5213-1	ATTACHMENT PLUG, X XT XP	1
CABINET PARTS			
1	QMFG1083AB	FELT	1
2	SBLG7-2	STAY	1
○ 3	QKQGN878AA	MUSIC STAND	1
4	SBHG5003-2	HINGE	2
○ 5	QKQGA131AA	TOPCOVER ASS'Y	1
○ 5-1	QMFG1221AA	FELT	2
○ 5-2	QMFG1222AA	FELT	1
5-3	SGBG160B	BADGE	1
○ 6	QKQGF034AA	KEYBOARD COVER ASS'Y	1
6-1	QKKG0095AD	ORNAMENT	1
○ 6-2	QMF61258AA	FELT	2
6-3	QMRG7031DC	PROTECTOR	1
6-4	QMRG7032DC	PROTECTOR	1
○ 6-5	QMFG1259AA	FELT	2
○ 6-6	QMFG1260AA	FELT	2
○ 6-7	QMFG1262AA	FELT	1
○ 6-8	QMFG1261AA	FELT	1
6-9	QXQG007AA	AXLETREE	1
6-10	QMRG7056AA	HOLDER	2
6-11	QWBG002AA	HOLDER	1
○ 7	QKUG1047AAK	SPEAKER BOX REAR BOARD	1

SX-PR702M CABINET & CHASSIS PARTS

Ref. No.	Part No.	Description	P/S
SPEAKERS			
○ SP1,2	EAS16PL471B3	16cm,6Ω	2
SP3,4	EAS15S09A	SPEAKER,13×6cm 8Ω	2
SP5,6	EAS65PH31A3	6.5cm,8Ω	2
POWER TRANSFORMERS			
○ T1	△ QTPG1M053A	POWER TRANSFORMER, EZ EK EW EF EA EP XL XR	1
○ T1	△ QTPG1M054A	POWER TRANSFORMER, M MC XM	1
POWER CORDS & PLUG			
PC1	△ QJAG025AA	POWER CORD, M MC XM	1
○ PC1	△ QJAG029AA	POWER CORD, XL XR	1
○ PC1	△ QJAG028AA	POWER CORD, EK	1
○ PC1	△ QJAG027AA	POWER CORD, EZ EW EF EA EP	1
CABINET PARTS			
1	QMFG1083AB	FELT	1
2	SBLG7-2	STAY	1
○ 3	QKQGN878AB	MUSIC STAND	1
4	SBHG5003-2	HINGE	2
○ 5	QKQGA131AB	TOPCOVER ASS'Y	1
○ 5-1	QMFG1221AA	FELT	2
○ 5-2	QMFG1222AA	FELT	1
5-3	SGBG160B	BADGE	1
○ 6	QKQGF034AB	KEYBOARD COVER ASS'Y	1
6-1	QKKG0095AC	ORNAMENT	1
○ 6-2	QMF61258AA	FELT	2
6-3	QMRG7031DC	PROTECTOR	1
6-4	QMRG7032DC	PROTECTOR	1
○ 6-5	QMFG1259AA	FELT	2
○ 6-6	QMFG1260AA	FELT	2
○ 6-7	QMFG1262AA	FELT	1
○ 6-8	QMFG1261AA	FELT	1
6-9	QXQG007AA	AXLETREE	1
6-10	QMRG7056AA	HOLDER	2
6-11	QWBG002AA	HOLDER	1
○ 7	QKUG1047AB	SPEAKER BOX REAR BOARD, EZ	1
○ 7	QKUG1047AC	SPEAKER BOX REAR BOARD, M MC EK EW EF EA EP XL XR XM	1

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Ref. No.	Part No.	Description	P/S
○ 8	QYKG234AAK	SPEAKER BOX	1
○ 9	QKQGN882AA	CROSS BOARD	1
10	SHRG9620A	CORD CLAMPER	3
○ 11	QKQGB481AA	LEFT PLANK ASS'Y	1
11-1	PP SHRG2130B-K	FOOT	3
○ 11-2	QMG0056AA	SPACER	1
○ 12	QKQGB482AA	RIGHT PLANK ASS'Y	1
12-1	PP SHRG2130B-K	FOOT	3
○ 12-2	QMG0056AA	SPACER	1
○ 13	QKQGM091AA	PEDAL BOX ASS'Y	1
13-1	ABS QGKG0113AA	ORNAMENT	3
14	SHRG1230A	CORD CLAMPER	1
15	QMBG009AA	SPRING	3
16	QMFG1133AA	FELT	3
17	QMFG1134AA	FELT	3
18	QMWG4002AA	PEDAL ARM	3
19	QMFG1135AA	FELT	3
20	QKAG0011AA	FOOT	1
○ 30	QMFG4222AA	CUSHION	2
31	SBNG7050A	KNOB	2
32	ABS QGUG3002BB	DIAL WHEEL	1
○ 33	QKWG033AB	LCD PANEL	1
○ 34	PS QGPG0133BB	CONTROL PANEL	1
35	QMFG1140AA	FELT	1
○ 36	QGUG1202BB	BUTTON	1
○ 37	QGUG1205BB	BUTTON	1
○ 38	QGUG1201CB	BUTTON	1
○ 39	QGUG1204CB	BUTTON	1
○ 40	QGUG1207BB	BUTTON	1
○ 41	QGUG1463AA	BUTTON	1
○ 42	QGUG1202CB	BUTTON	1
○ 43	QMFG4215AA	CUSHION	1
○ 44	QGUG1440AB1K	BUTTON	1
○ 45	QGUG1462AA	BUTTON	1
○ 46	QGUG1461AA	BUTTON	1
○ 47	QGUG1468AA	BUTTON	1
○ 48	QGUG1465AA	BUTTON	1
○ 49	QMFG4214AA	CUSHION	2
○ 50	QGUG1471AA	BUTTON	2
○ 51	QGUG1466AA	BUTTON	1
○ 52	QGUG1459AA	BUTTON	1
○ 53	QGUG1201BB	BUTTON	1
○ 54	QGUG1460AA	BUTTON	1
○ 55	QGUG1467AA	BUTTON	1
○ 56	QGUG1204BB	BUTTON	1
○ 57	QGUG1216AB	BUTTON	1
○ 58	QGUG1203BB	BUTTON	1
○ 59	QGUG1203BB	BUTTON	1
○ 60	QGUG1206BB	BUTTON	2
○ 61	QGUG1203CB	BUTTON	2
○ 62	QGUG1464AA	BUTTON	1
○ 63	QGUG1212AB	BUTTON	1
○ 64	QGUG1203BB	BUTTON	1
○ 65	QGUG1203DB	BUTTON	1
○ 66	QKKG0096AD	AC JACK PANEL, EN M EK EZ EW EF EA EP EH XL XR XP XM XW MC	1
○ 66	QKKG0096BC	AC JACK PANEL, X XS XT XD	1
67	△ SJS9231A	AC INLET COVER, EN EK EZ EW EF EA EP EH X XL XR XS XT XD XP XW	1
67	△ SJS9334A	AC INLET COVER, M MC XM	1
68	QMRG7029AC	BRACKET	1
69	QMRG7028AC	BRACKET	1
○ 70	QKKG0076FB	EXTERNAL JACK PANEL	1
71	SBNG4010A	VOLUME KNOB	1

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Ref. No.	Part No.	Description	P/S
○ 8	QYKG234ABK	SPEAKER BOX	1
○ 9	QKQGN882AB	CROSS BOARD	1
10	SHRG9620A	CORD CLAMPER	3
○ 11	QKQGB481AB	LEFT PLANK ASS'Y	1
11-1	PP SHRG2130B-K	FOOT	3
○ 11-2	QMG0056AA	SPACER	1
○ 12	QKQGB482AB	RIGHT PLANK ASS'Y	1
12-1	PP SHRG2130B-K	FOOT	3
○ 12-2	QMG0056AA	SPACER	1
○ 13	QKQGM091AB	PEDAL BOX ASS'Y, EZ	1
13-1	ABS QGKG0113AA	ORNAMENT	3
○ 13	QKQGM091AC	PEDAL BOX ASS'Y, M MC EK EW EF EA EP XL XR XM	1
13-1	ABS QGKG0113AA	ORNAMENT	3
14	SHRG1230A	CORD CLAMPER	1
15	QMBG009AA	SPRING	3
16	QMFG1133AA	FELT	3
17	QMFG1134AA	FELT	3
18	QMWG4002AA	PEDAL ARM	3
19	QMFG1135AA	FELT	3
20	QKAG0011AA	FOOT	1
○ 30	QMFG4222AA	CUSHION	2
31	SBNG7050A	KNOB	2
32	ABS QGUG3002BB	DIAL WHEEL	1
○ 33	QKWG033AB	LCD PANEL	1
○ 34	PS QGPG0133BB	CONTROL PANEL	1
35	QMFG1140AA	FELT	1
○ 36	QGUG1202BB	BUTTON	1
○ 37	QGUG1205BB	BUTTON	1
○ 38	QGUG1201CB	BUTTON	1
○ 39	QGUG1204CB	BUTTON	1
○ 40	QGUG1207BB	BUTTON	1
○ 41	QGUG1463AA	BUTTON	1
○ 42	QGUG1202CB	BUTTON	1
○ 43	QMFG4215AA	CUSHION	1
○ 44	QGUG1440AB1K	BUTTON	1
○ 45	QGUG1462AA	BUTTON	1
○ 46	QGUG1461AA	BUTTON	1
○ 47	QGUG1468AA	BUTTON	1
○ 48	QGUG1465AA	BUTTON	1
○ 49	QMFG4214AA	CUSHION	2
○ 50	QGUG1471AA	BUTTON	2
○ 51	QGUG1466AA	BUTTON	1
○ 52	QGUG1459AA	BUTTON	1
○ 53	QGUG1201BB	BUTTON	1
○ 54	QGUG1460AA	BUTTON	1
○ 55	QGUG1467AA	BUTTON	1
○ 56	QGUG1204BB	BUTTON	1
○ 57	QGUG1216AB	BUTTON	1
○ 58	QGUG1203BB	BUTTON	1
○ 59	QGUG1203BB	BUTTON	1
○ 60	QGUG1206BB	BUTTON	2
○ 61	QGUG1203CB	BUTTON	2
○ 62	QGUG1464AA	BUTTON	1
○ 63	QGUG1212AB	BUTTON	1
○ 64	QGUG1203BB	BUTTON	1
○ 65	QGUG1203DB	BUTTON	1
○ 66	QKKG0096AD	AC JACK PANEL	1
67	△ SJS9231A	AC INLET COVER, EZ EK EW EF EA EP XL XR	1
67	△ SJS9334A	AC INLET COVER, M MC XM	1
68	QMRG7029AC	BRACKET	1
69	QMRG7028AC	BRACKET	1
○ 70	QKKG0076FB	EXTERNAL JACK PANEL	1
71	SBNG4010A	VOLUME KNOB	1

SX-PR702

Ref. No.	Part No.	Description	P/S
72	QKAG0012AA	FOOT	2
73	QMRG7086AA	LID, GUIDE	2
74	QMBG023AA	SPRING	1
75	QKSGG028AA	GUIDE	1
76	QKSGG029AA	GUIDE	1
77	QAUG019AA	DISK DRIVE UNIT	1
78	QMFG1220AA	FELT	1
79	QEXGRA01007H	WIRE	1
80	QMGG029AA	FLOATING RUBBER	4
90	QYKG231AA	CABINET ASS'Y	1
91	QMFG4103AA	CUSHION	1
92	QLZG017A	CORE	8
93	QQLG174AA	HEADPHONE LABEL	1
94	QMGG054AA	SPACER	2
95	QMRG1027AA	FUSE COVER, EN EK EZ EW EF EA EP EH XL XR XP XW M MG XM	1
95	QMRG1027AA	FUSE COVER, X XS XD XT	3
96	QEXGRA01007K	WIRE	1

SCREWS & WASHERS

N1	XTW3+10Q	SCREW	2
N2	XTWSG2	SCREW WITH WASHER	2
N3	XNS12FZ	NUT	3
N4	XNS9	NUT	1
N5	QHDG043AA	SCREW WITH WASHER	4
N6	XYN3+F6	SCREW WITH WASHER	1
N7	XTW3+8J	SCREW	1
N8	XTB3+10AFZ	SCREW	3
N9	XTS3+10AFZ	SCREW	4
N10	XTT4+10A	SCREW	8
N11	XTB4+10B	SCREW	2
N12	XTT4+12AFZ	SCREW	1
N13	XTT4+16A	SCREW	2
N14	XYN4+F16FZ	SCREW WITH WASHER	3
N15	XTB35+14A	SCREW	1
N16	XTWSG2	SCREW WITH WASHER	6
N17	XTW3+10Q	SCREW	42
N18	XYN4+F16	SCREW WITH WASHER	4
N19	XYN4+F25	SCREW WITH WASHER	6
N20	XTB35+10A	SCREW	18
N21	SNEG2660A	SCREW	9
N22	QHDG021AA	SCREW WITH WASHER	10
N23	XTW3+8J	SCREW	8
N24	XTB4+10C	SCREW	4
N25	QHWG007AA	NUT	2
N26	SNEG2400A	SCREW WITH WASHER	2
N27	XSN5+85	SCREW	4
N28	XWA5B	WASHER	4
N29	SNEG150A	WASHER	4
N30	XTB35+10A	SCREW	4
N31	GTT4+35AFZ	SCREW	4
N32	XTS3+12AFZ	SCREW	6
N33	XTB35+16A	SCREW	14
N34	XTN4+50AFZ	SCREW	4
N35	XWG4G16	WASHER	1
N36	XTB35+20A	SCREW	2
N37	XTW3+16J	SCREW	12
N38	SNE499-1	NUT	8
N39	XTT4+12A	SCREW	8
N40	QHDG004AA	SCREW	2
N41	XTT4+25AFZ	SCREW	10
N42	QHDG016AB	SCREW WITH WASHER	8
N43	XTT5+20AFZ	SCREW	8
N44	QHDG032AB	SCREW WITH WASHER	4
N45	XTN4+16F	SCREW WITH WASHER	1

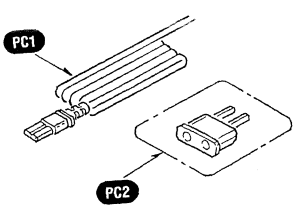
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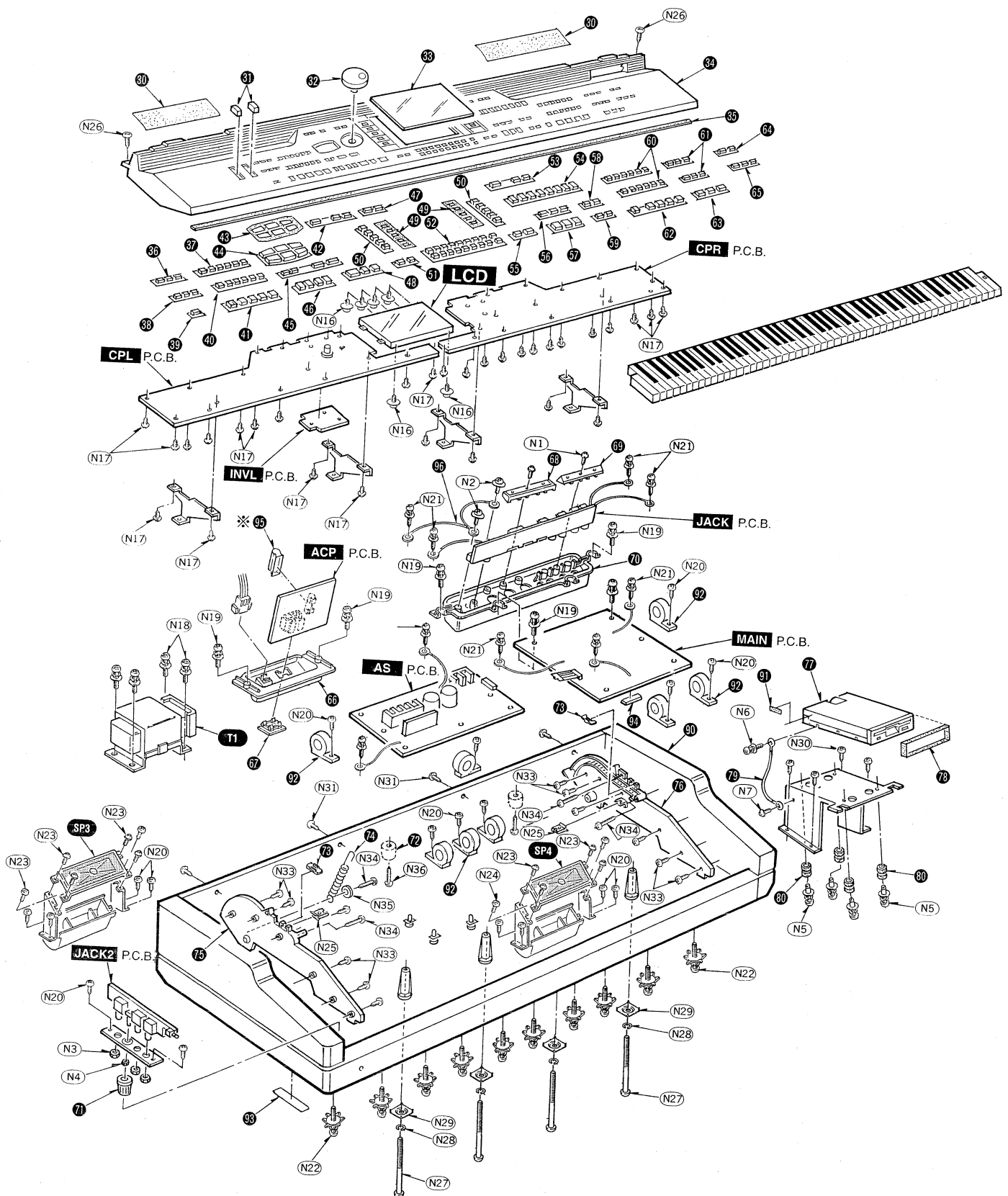
Ref. No.	Part No.	Description	P/S
72	QKAG0012AA	FOOT	2
73	QMRG7086AA	LID, GUIDE	2
74	QMBG023AA	SPRING	1
75	QKSGG028AA	GUIDE	1
76	QKSGG029AA	GUIDE	1
77	QAUG019AA	DISK DRIVE UNIT	1
78	QMFG1220AA	FELT	1
79	QEXGRA01007H	WIRE	1
80	QMGG029AA	FLOATING RUBBER	4
90	QYKG231AB	CABINET ASS'Y	1
91	QMFG4103AA	CUSHION	1
92	QLZG017A	CORE	8
93	QQLG174AA	HEADPHONE LABEL	1
94	QMGG054AA	SPACER	2
95	QMRG1027AA	FUSE COVER	1
96	QEXGRA01007K	WIRE	1

SCREWS & WASHERS

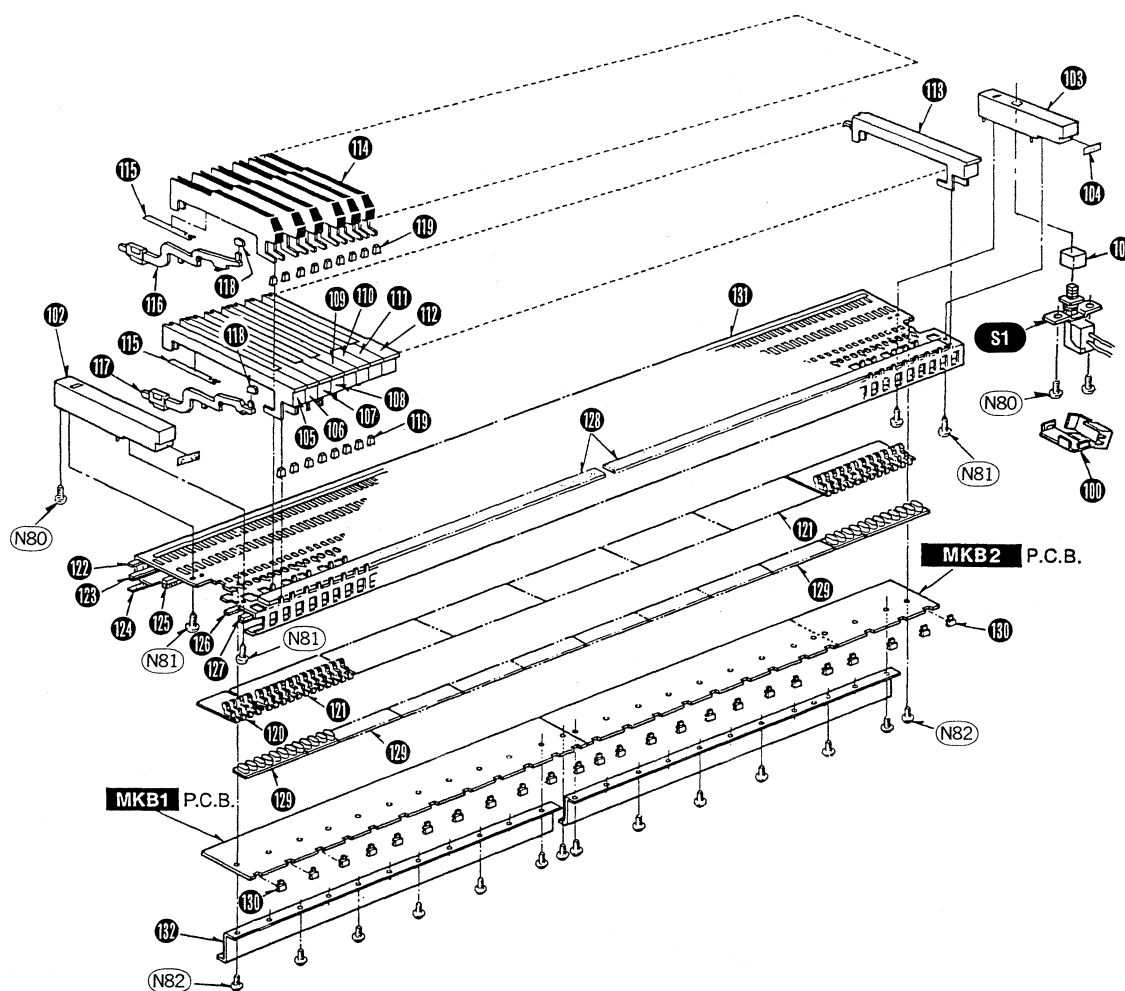
N1	XTW3+10Q	SCREW	2
N2	XTWSG2	SCREW WITH WASHER	2
N3	XNS12FZ	NUT	3
N4	XNS9	NUT	1
N5	QHDG043AA	SCREW WITH WASHER	4
N6	XYN3+F6	SCREW WITH WASHER	1
N7	XTW3+8J	SCREW	1
N8	XTB3+10AFZ	SCREW	3
N9	XTS3+10AFZ	SCREW	4
N10	XTT4+10A	SCREW	8
N11	XTB4+10B	SCREW	2
N12	XTT4+12AFZ	SCREW	1
N13	XTT4+16A	SCREW	2
N14	XYN4+F16FZ	SCREW WITH WASHER	3
N15	XTB35+14A	SCREW	1
N16	XTWSG2	SCREW WITH WASHER	6
N17	XTW3+10Q	SCREW	42
N18	XYN4+F16	SCREW WITH WASHER	4
N19	XYN4+F25	SCREW WITH WASHER	6
N20	XTB35+10A	SCREW	18
N21	SNEG2660A	SCREW	9
N22	QHDG021AA	SCREW WITH WASHER	10
N23	XTW3+8J	SCREW	8
N24	XTB4+10C	SCREW	4
N25	QHWG007AA	NUT	2
N26	SNEG2400A	SCREW WITH WASHER	2
N27	XSN5+85	SCREW	4
N28	XWA5B	WASHER	4
N29	SNEG150A	WASHER	4
N30	XTB35+10A	SCREW	4
N31	GTT4+35AFZ	SCREW	4
N32	XTS3+12AFZ	SCREW	6
N33	XTB35+16A	SCREW	14
N34	XTN4+50AFZ	SCREW	4
N35	XWG4G16	WASHER	1
N36	XTB35+20A	SCREW	2
N37	XTW3+16J	SCREW	12
N38	SNE499-1	NUT	8
N39	XTT4+12A	SCREW	8
N40	QHDG004AA	SCREW	2
N41	XTT4+25AFZ	SCREW	10
N42	QHDG016AB	SCREW WITH WASHER	8
N43	XTT5+20AFZ	SCREW	8
N44	QHDG032AB	SCREW WITH WASHER	4
N45	XTN4+16F	SCREW WITH WASHER	1

100





■ MANUAL KEYBOARD PARTS LOCATION

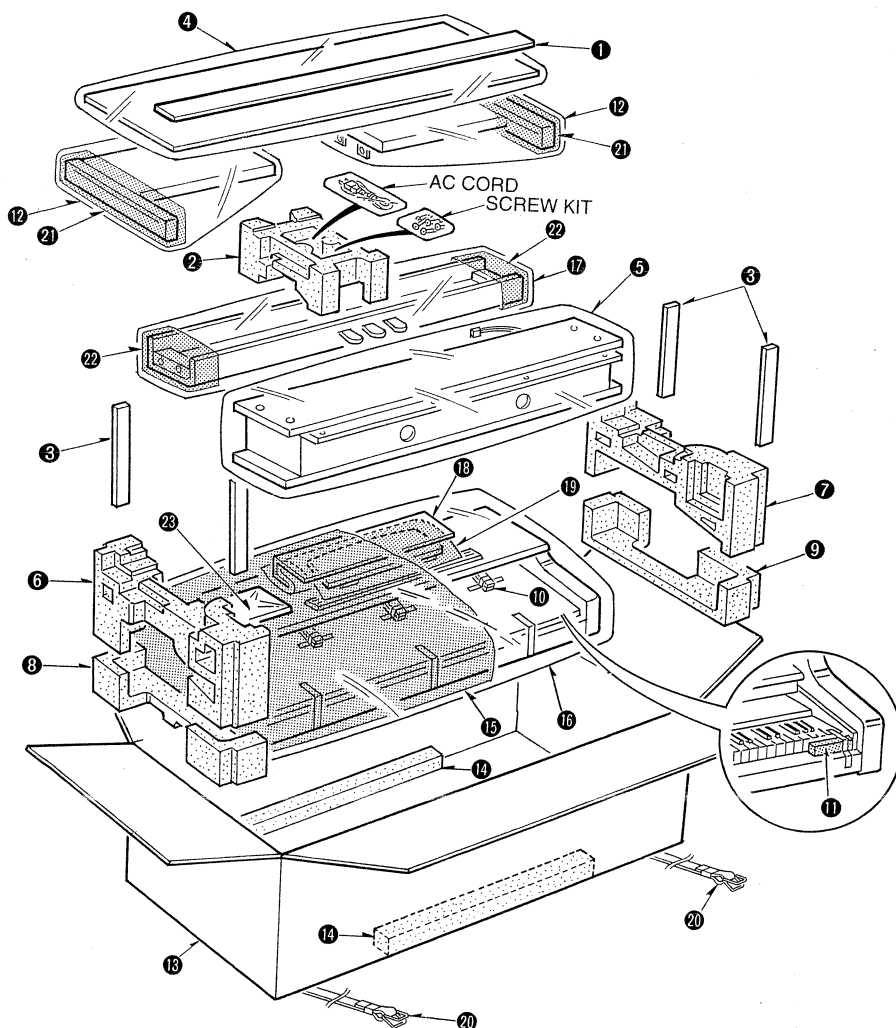


MANUAL KEYBOARD PARTS

Ref. No.	Part No.	Description	P/S	
SWITCH				
S1	 ESB8273V	POWER SWITCH	1	
MANUAL KEYBOARD PARTS				
100	 PP	SHRG8390A	COVER,POWER SW	1
101	 ABS	QGUG1040AA	BUTTON,POWER SWITCH	1
102	 PS	QGP00042AB	END COVER PANEL,RIGHT	1
103	 PS	QMGFG0041BB	END COVER PANEL,LEFT	1
104		QMPG1104AA	FELT	2
105	 AS	QMWG1001AB	WHITE KEY (FIRST OCTAVE A KEY)	1
106	 AS	QMWG1002AB	WHITE KEY (B KEY)	8
107	 AS	QMWG1003AB	WHITE KEY (C KEY)	7
108	 AS	QMWG1004AB	WHITE KEY (D KEY)	7
109	 AS	QMWG1005AB	WHITE KEY (E KEY)	7
110	 AS	QMWG1006AB	WHITE KEY (F KEY)	7
111	 AS	QMWG1007AB	WHITE KEY (G KEY)	7
112	 AS	QMWG1008AB	WHITE KEY (A KEY)	7
113	 AS	QMWG1009AB	WHITE KEY (TOP OCTAVE C KEY)	1
114	 AS	QMWG2001AC	BLACK KEY	36
115		SUSG534A	SPRING	88
116		QMWG8019CA	HAMMER (BLACK KEY)	36
117		QMWG8017DA	HAMMER (WHITE KEY)	52

Ref. No.	Part No.	Description	P/S
118	SHGG9121A	RUBBER CAP (HAMMER)	88
119	QMWG8037AA	KEY GUIDE	88
120	QMWG8022AA	FULCURUM (4PCS.ON ONE)	1
121	QMWG8021AA	FULCURUM (12PCS.ON ONE)	7
122	SHRGA9080A	SPONGE	2
123	QMFG1073AA	FELT	2
124	QMFG1230AA	FELT	2
125	QMFG1101AA	FELT	2
126	QMFG1061AB	FELT	2
127	QMFG1231AC	FELT	2
128	QMFG1086AB	FELT	2
129	QMWG6006AA	RUBBER SWITCH (8PCS. ON ONE)	11
130	SHRG9751A	P.C.B.HOLDER	24
131	QMWG3003CA	CHASSIS	1
132	SUWG3154A	ANGLE	2
SCREWS			
N80	XTV3+10C	SCREW	2
N81	XTB4+12A	SCREW	4
N82	XTW3+10T	SCREW	14

PACKING



PACKING PARTS

Ref. No.	Part No.	Description	P/S	Ref. No.	Part No.	Description	P/S
PACKING PARTS				OPERATING INSTRUCTION MANUAL			
1	QPNG0358AA	TOP CARDBOARD	1	23	QQFGPR702AA	OPERATING INSTRUCTION MANNUAL, EN EK EP X XL XR XS XT	1
2	QPNG0697AA	PAD	1	23	QQFGPR702BA	OPERATING INSTRUCTION MANNUAL, XD XP XM XW	1
3	QPQG061AB	PROP	4	23	QQFGPR702CA	OPERATING INSTRUCTION MANNUAL, M	1
4	PE QPFG013AA	POLYETHYLENE BAG	1	23-1	QQTG0497A	ENGLISH	1
5	PE QPFG012AA	POLYETHYLENE BAG	1	23-2	QQTG0499A	FRANCAIS	1
6	PS QPNG0693AA	PAD	1	23	QQFGPR702DA	OPERATING INSTRUCTION MANNUAL, EZ	1
7	PS QPNG0694AA	PAD	1	23	QQFGPR702EA	OPERATING INSTRUCTION MANNUAL, EW	1
8	PS QPNG0695AA	PAD	1	23-1	QQTG0499A	FRANCAIS	1
9	PS QPNG0696AA	PAD	1	23-2	QQTG0500A	DEUTSCH	1
10	SPNG5161A	SPACER	3	23	QQFGPR702FA	OPERATING INSTRUCTION MANNUAL, EA	1
11	PE QPNG0556AA	SPACER	2	23	QQFGPR702GA	OPERATING INSTRUCTION MANNUAL, EH	1
12	PE QPFG006AA	POLYETHYLENE BAG	2	23-1	QQTG0501A	NERDERLANDS	1
13	QPGG0419AA	PACKING CASE,PAPER,SX-PR702	1	23-2	QQTG0499A	FRANCAIS	1
13	QPGG0411AB	PACKING CASE,PAPER,SX-PR702M	1	23-3	QQTG0500A	DEUTSCH	1
14	QPNG0703AA	PAD	2				
15	PE QPHG028AA	PROTECTION SHEET	1				
16	PE QPFG013AA	POLYETHYLENE BAG	1				
17	PE QPFG026AA	POLYETHYLENE BAG	1				
18	QPGG0358AA	PAD	1				
19	PE SPHG2240A	PROTECTION SHEET	1				
20	SPSG40A	BAND	2				
21	PE QPHG093AA	PROTECTION SHEET	2				
22	PE QPHG094AA	PROTECTION SHEET	2				

Service Manual

PCM Digital Ensemble

SX-PR702/PR702M

(M), (MC), (XM), (EN), (EH), (EF), (EZ), (EW), (EA), (EP),
(EK), (XL), (XR), (XS), (XD), (XT), (X), (XP), (XW)

Please file and use this supplemental manual together with the service manual for
Model No. SX-PR702/PR702M Order No. EMID981693.

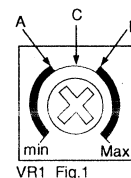
About the adjustment of switching amp

■ ADJUSTMENTS

Adjustment item	Necessary instrument	Adjustment condition	Adjustment point
Switching amp	Adjustment screwdriver not made from metal	Main volume is maximum	V.R. 1 on AS P.C.B.

Adjustments procedures

1. Turn VR1 until the end of the left. (Sounding the noise as a whistle.)
2. Turn VR1 to the right slowly with hearing as a whistle from monitor speaker,
there is the point where the noise stops suddenly. (Point-A of Fig 1.)
3. Turn VR1 further to the right, sounding the whistle noise again. (Point-B of Fig 1.)
4. Set VR1 the center of between the point A and B. (Point-C of Fig 1.)



VR1 Fig.1

Change of Parts No.

AS AMP & POWER SUPPLY CIRCUIT (Refer to page III -6)

REF. NO.	Parts No.		Description	P/S
	Original	New		
RESISTOR				
R62	ERDS2TJ222	ERDS2TJ152	1.5kΩ	1

⚠ WARNING

This service information is designed for experienced repair technicians only and is not designed for use by the general public. It does not contain warnings or cautions to advise non-technical individuals of potential dangers in attempting to service a product. Products powered by electricity should be serviced or repaired only by experienced professional technicians. Any attempt to service or repair the product or products dealt with in this service information by anyone else could result in serious injury or death.

Technics

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